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PEWTERCRAFT AS A HOBBY

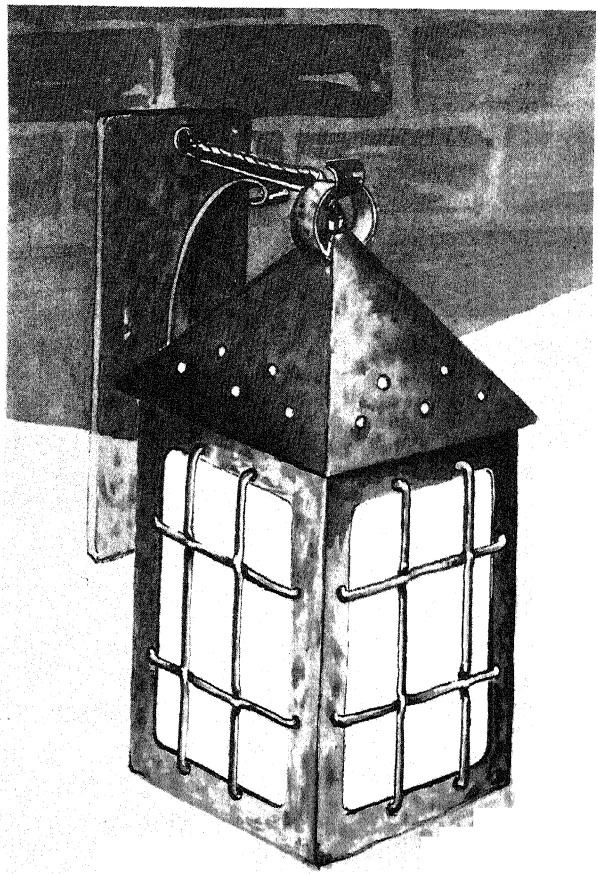


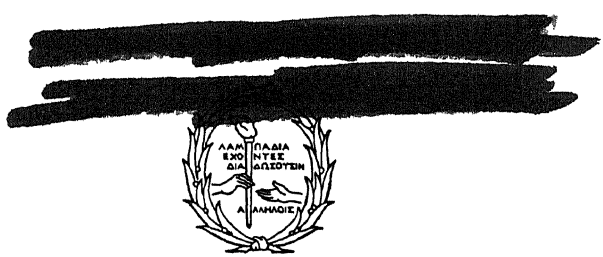
FIG. 1. Pewter lantern

Described on page 102

PEWTERCRAFT AS A HOBBY

by Emanuele Stieri

PHOTOGRAPHS BY THE AUTHOR
ILLUSTRATIONS BY RUTH BATZ



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PEWTERCRAFT AS A HOBBY

FIRST EDITION
K-P

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PART I

CHAPTER 1

History and Development of Pewtercraft

BEFORE considering the various phases of pewtercraft as a hobby, the craftsman will, we are certain, be interested in the historical background of this fascinating metal. While some historians claim that the use of pewter for household utensils takes us back to the Middle Ages, that is not entirely true. One cannot find in the history of civilization the exact date when pewter in one form or another was first used. However, archaeologists and historians have proved without doubt that pewter was used as a medium by the artists and craftsmen of China and Japan.

Before we discuss any outstanding work of the pewterers of the western countries, let us give consideration to some beautiful specimens made hundreds, in fact, thousands of years ago by the Oriental workers, who had a civilization of their own long before our ancestors even thought of civilization or of art.

Exactly how old are some of these exquisite pieces of pewter that the Chinese and Japanese artists have fashioned, it is almost impossible to say. But it is known that the Chinese, some 2000 years ago, used pewter and discovered the secret of a workable alloy made up of lead and tin. Specimens of Oriental pewter in the museums of England are known to be over 1100 years old; and we have old specimens of a similar type on exhibition at our own Boston Museum of Fine Arts.

The ancient Japanese metal craftsmen employed a few special secrets of their own in the handling of pewter. Their work is of such a curious tint, that, if it were not a fact, one would hardly believe these articles were made of pewter. Once the old craftsman finished a piece of work, that piece of metalcraft was never polished. It was only rubbed with a soft rag. After some time, the surface of the metal became coated with a faint green rust. This rust was usually two-tinted, the lighter forming the ground, and the darker tint of rust showing in patches which gave the old piece an artistic luster.

In general, these vessels were not flat, but hollow, and a number were modeled from the ever-present form of the Lotus, which was used to a great extent by these Oriental artisans. Some of them bore a figure of Buddha. These ancient workers used a pewter that contained a large percentage of lead, since this type of pewter could be more easily worked.

They later developed a harder and more brittle pewter containing a large proportion of antimony. This, incidentally, was adapted for casting or stamping intricate and delicate forms. If we of modern times think the art of casting forms or figures of metal is new, let us at once dispel that

illusion. These ancient workmen had all the intricacies of casting down to a fine point. They also used engraving, and the grace and simplicity of the patterns they engraved are marvelous.

The old English pewterers drew their supply of tin from the Cornish mines, using approximately about 8000 to 10,000 tons per year. Lead, another element in pewter, was also drawn from places near these tin mines; and England became known as the "classic land of lead and tin." Herodotus mentioned the trade in lead as one of the chief inducements which brought the Phoenician to the shores of what is now Great Britain. An important writer says the following:

> These two metals (tin and lead) made the early fame of Britain; they brought here the Phoenician trader and had doubtless much to do with the Roman occupation of this distant island.

The Ancient Romans used pewter for their seals of office. Until a few years ago, many of these ancient seals could be found in the county of Westmoreland, England, where they were left by the Romans. The seals were of all shapes, sizes, and forms. But, due to the fact that they made excellent solder, they have been almost entirely destroyed by the tinkers in that particular neighborhood.

In ancient days, the Romans carried tin from Cornwall by ship and overland. And when they lacked sufficient material for the proper alloys, they made their pewter of pure tin. Not only did the Romans get their share of the tin, but France, too, managed to get some. Holland got hers through the city of Bruges; and Barcelona sent out so much of this metal to Venice and other parts of Italy that, as early

as 1406, it was necessary to frame statutes regulating this trade.

It is interesting to note that the word pewter has its equivalent in quite a few languages, *peautre*, dating back to 1229 in France, while the Dutch used, *speawter* or sometimes *peawter*. In old English inventories of metal workers, the word was found to be spelled a number of ways.

Contrary to general belief, the French were the first of the European nations to have fine pewter in their homes. In 1390, most of the wealthy nobles and ecclesiastical dignitaries were supplied with large quantities of pewter plates; and as far back as 1401, Isabel of Bavaria, the wife of Charles of France, bought for her household a quantity of pewter dishes and porringers.

The period of the most showy development of pewter began in France about 1550; and a Frenchman, Francois Briot, was one of its most noted workers. Originally a maker of dies and molds, he became a fine worker in metal, and attained his greatest successes in pewter.

Examples of the work of this artist can be seen in most of the museums of Europe. He fashioned his work in sections, joining them together and then carefully finishing off the work in delicate relief.

Other great French metal workers followed in the steps of Briot, the most outstanding of which was Jules Bratau. Samples of his work can be seen today in the Chicago Museum of Fine Arts. His work was very much in the style of Briot, whose methods he used.

The early European workers discovered that tin by itself is not so durable or ductile as lead. The two metals, when combined in proper proportion, did not shrink as much as either taken separately, a quality which the early craftsman

had to consider when casting in a mold. Benvenuto Cellini used pewter for obtaining the first proofs of his medals and coins. The methods employed in making objects from pewter have been approximately the same from time to time, depending on the nature of the object; whether it was cast or hammered, or both; and the manner of finishing, by putting upon a lathe and burnishing or otherwise.

Tools used by the ancient pewterer were comparatively simple and few in number. He made up for the scarcity of tools and equipment by his innate craftsmanship and artistry.

The most valuable records of the English pewterers and their craft are contained in the book of the "Worshipful Company of Pewterers," which was the Guild of Pewterers. These records contain the history of the company down to 1706. In the Middle Ages, traveling pewterers very similar to our itinerant peddlers and handy men, went from town to town repairing damaged pieces of pewter or making new ones to order.

At this time the pewter which was in use, and considered of a good quality, was an alloy of 80 parts tin and 20 parts lead. And some of these traveling pewterers, in order to accrue more profits to themselves, frequently resorted to the trick of adulterating pewter with a larger lead content, thus producing an inferior black material which after all was not real pewter.

In England during the reign of Edward III (A.D. 1348) a number of prominent English pewterers, who had a tremendous amount of pride in their craft, established a well-organized guild to prohibit dishonest workmanship or products, and to protect the industry of pewterers by eliminating those who did not adhere to the strict regulations of the

guild. At this time, pewter was a material used generally by the middle and upper classes. The English Guild of Pewterers increased in strength and in power; and with this natural growth of their power they eventually passed laws giving them the legal right to destroy all poor and inferior pewter, and limit the manufacturing of pewter ware to men who were skilled artisans and who had served a certain time of apprenticeship.

During this period in the life of the English pewterers some remarkable examples of pewtercraft were made, a number of which are on permanent exhibition in the Metropolitan Museum of New York, and in other museums throughout the world.

The virtual monopoly of the pewterers craft by guild members held until early in the eighteenth century. But modern inventions and discord among the members gradually broke up the guild. In a way this loss of power by the guild was unfortunate, for this combine of skilled craftsmen continually searched and strived for the best ideals in workmanship and in the use of the best materials procurable. However, with the introduction of cheaper china and pottery for both table and domestic uses, the more expensive product of pewter was gradually shoved aside.

Pewter, that is, modern pewter as we now know it is usually composed of four parts of tin and one part of lead, sometimes with small additions of copper, zinc, and antimony. As a metal for use by the home craftsman, pewter is ideal. It is so soft it can be hammered into almost any shape and to any depth desired. With hammering, the pewter hardens to a degree, but never to such an extent that it is not malleable.

The amateur metal worker, by the way, should under-

stand the term, malleability. One must always realize that the shaping of metal in metalcraft is usually accomplished by hammering the metal into form. The ease with which pewter can thus be hammered and shaped is called its malleability. This term is derived from the Latin word *malleare*, meaning to hammer. From this Latin derivation the English word mallet is also taken. Pewter, due to the fact that hammering hardens it, never requires annealing. In fact, pewter cannot be annealed, for it melts at a low temperature.

As pewter is easy to work, really excellent and artistic results can be obtained with this metal with a minimum of effort and equipment. In addition to being easily shaped, pewter can also be just as easily etched, and artistic and effective designs can be worked out on the metal by etching. While it can be used for such objects as book ends and other smaller objects which will require bending only, it is particularly adaptable for making objects which require considerable hammering, such as trays, plates, etc.

A good quality of pewter is now known under the trade name "Brittania," and can be purchased in sheets. Under the 20-gauge American wire standard, these sheets are rolled 18″ wide. In thinner gauges one can obtain them 30″ to 32″ wide. There are three qualities of the metal available. These are Nos. 1, 2, and 2 ply. No. 1 is an alloy of 90.7 per cent tin, 7.8 per cent antimony and 1.5 per cent copper. It is ideal for hammered projects which require only a minimum amount of raising. The No. 2 quality has 92 per cent tin, 5 per cent antimony and 3 per cent copper. This grade is of a softer grade and thins and hammers much more readily than No. 1. No. 2 ply is a lower-priced alloy.

As can be seen from the above, there is an entire absence of lead in the pewter or Brittania that is used today. This

absence of the lead makes the metal nontoxic and, thus, far superior to the lead alloy in the older pewter. Tin, which is a chief member of the alloy, has important qualities of its own, since whiteness and freedom from any oxidation lend to its decoration a softness and delicacy of treatment. This has been overlooked to a great extent, mainly because tin has been used for industrial purposes and is associated with kitchen utensils.

CHAPTER 2

Tools and Equipment Required

As IN all other arts and crafts, the matter of tools and equipment is largely up to the individual. Pewtercraft, fortunately for one with limited finances, can be pursued successfully with a few essential tools. If cost is not of paramount importance, one can invest in a great assortment of tools and fine equipment.

The author will discuss only the tools essential to a craftsman who desires to do good work. However, as we progress in the description of various processes, mention will be made of other tools, and the choice will be left entirely to the craftsman as to whether or not he secures any of this additional equipment.

Before describing the tools required, the author wishes to stress the importance of buying fewer tools of a better quality, rather than a great assortment of cheap and shoddy tools. Cheap tools never stand up, never do good, accurate

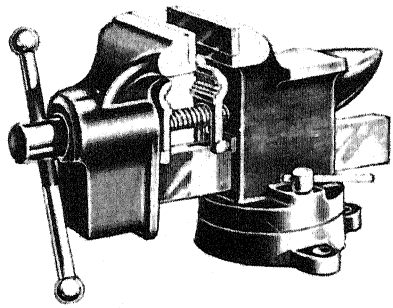
work, and in the end they are a poor investment. It is far wiser to buy a few necessary tools of a good standard make, and then to add to the equipment gradually.

WORKBENCH

Well designed sturdy workbenches can be secured at any store dealing in shop supplies. But, if you cannot afford a workbench designed specifically for that purpose, any ordinary bench or table can be used for pewtercraft. One of the heavy kitchen tables, so often seen in secondhand stores, can easily be adapted for our purpose. But the top of the table should be rather low and it is recommended that the craftsman shorten the legs by two or three inches before setting up one of these kitchen tables as a workbench.

VISES

Two types of vises used for metal working are shown in Fig. 2 and at A in Fig. 3. A good substantial vise should be secured to hold the mandrel at various stages of the work. It should be of a fairly good size, of good quality steel, and should measure approximately two or three inches across the top. Vises of the type shown in the illustration can be secured at any first-class hardware store.



Courtesy William Dixon, Inc.

FIG. 2. Vise suitable for pewtercraft

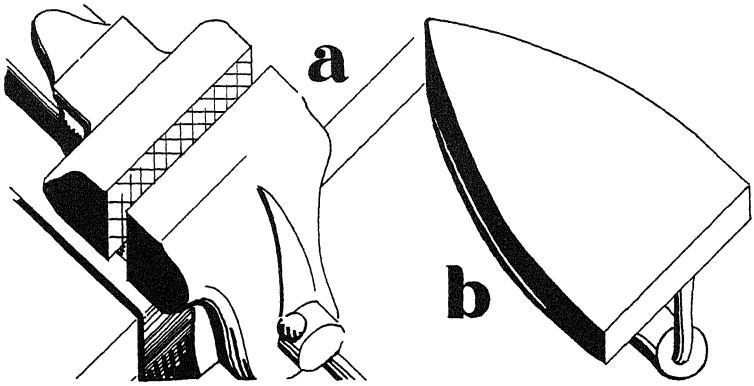


FIG. 3. (A) Another type of vise suitable for pewtercraft
(B) An inverted flatiron can be used in place of an anvil

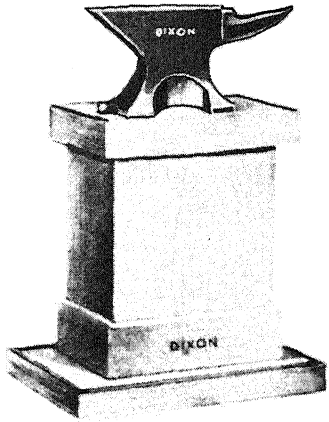
ANVIL

If you do not wish to invest in a regular anvil an ordinary old discarded flatiron can serve the purpose just as well, but make certain that the bottom is perfectly smooth. If you use a flatiron for an anvil, invert it and make some arrangement for holding it steadily in place. A simple support for this improvised anvil is made of two thick boards cut to approximately the height of the handle, placed one on each side of the handle, and bolted firmly together. With this additional support, the flatiron can be held in place in the vise, and thus you have an improvised anvil. (See Fig. 3.) However, if you have the money to spend and the desire to have real equipment, the anvil shown in Fig. 4 is standard equipment.

THE SHEARS

Pewter is cut with special shears, called metal shears or metal snips. Various types of these shears are shown in Fig. 5. As can be seen from the illustration, some of these are

made with straight blades, obviously for cutting straight lines. However, for the craftsman, an ideal type of shear is



Courtesy William Dixon, Inc.

FIG. 4. Suitable type of anvil for pewtercraft

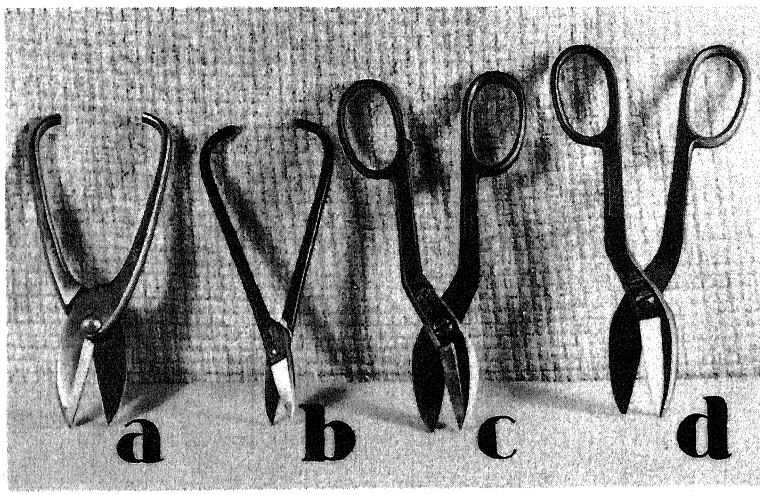
the Universal Metal Shear. As can be seen from the same illustration, the special shaping of the blades of a Universal Metal Shear enables the craftsman to use them for both straight and curved cutting. Of course, these shears are not cheap, and, if economy is of prime consideration to the beginner, he can procure a pair of low-priced metal shears with straight blades for straight cutting. When it is necessary to cut curved lines he will have to saw them instead of cutting them. This involves more work than would be necessary if he had a pair of Universal Shears: but, where economy is a prime factor, a little extra work shouldn't matter in the least.

SAW FRAME AND BLADES

Used to saw curves or irregular outlines, the saw is sometimes used in place of, or to supplement, the cutting out with

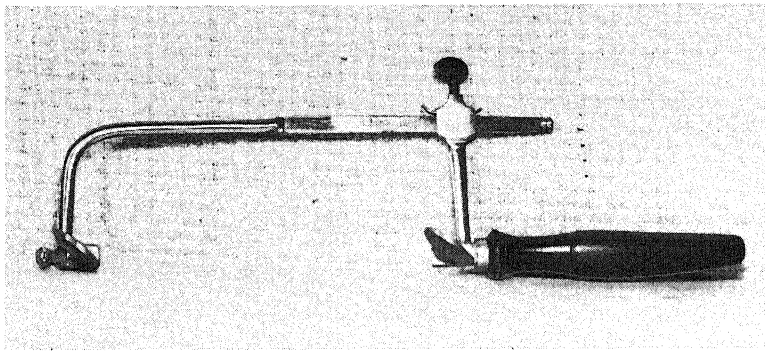
shears. Saws are also used for sawing pieces out of the metal, when doing cutout work or fretwork. The ideal frame to use is known as a jeweler's saw frame, illustrated in Fig. 6. It has screws that tighten both ends of the blade. This tightening of the blade is extremely necessary when doing pewter work.

While there are various sizes of these frames available to the craftsman, one with a depth of about 5″ measured horizontally from the blade to the back of the jeweler's saw frame is adequate for all pewtercraft work. Blades for the saws are procurable in five sizes: No. 1, which is the finest, to No. 5, the coarsest. All these blades are extremely thin, narrow strips, less than 1/32″ wide, the difference between them lying only in the size of the tiny teeth. When using these blades, a little vaseline or oil rubbed on the blade will facilitate the sawing.



Courtesy William Dixon, Inc.

FIG. 5. Four types of shears used for cutting pewter. (A) Shears used for straight cutting. (B) Practical small shears for light work. (C) and (D) Curved blade shears for both straight and curved cutting



Courtesy William Dixon, Inc.

FIG. 6. Jeweler's saw frame

HAMMER AND MALLET

An ordinary wooden mallet of the type shown in the photograph, Fig. 7, is usually employed for pewtercraft and is needed for flattening the metal surfaces. Another type of mallet is also shown in the same photograph. This has a rounded edge, useful for forming the metal into bowl shapes. This type of mallet is called a forming mallet. In the photograph, Fig. 7, a mallet with one round end and one flat end is also shown. This type of mallet can be used for both the ordinary mallet and the forming mallet. If the craftsman is planning to do raised work of any type whatsoever, he should secure the rounded end type of mallet.

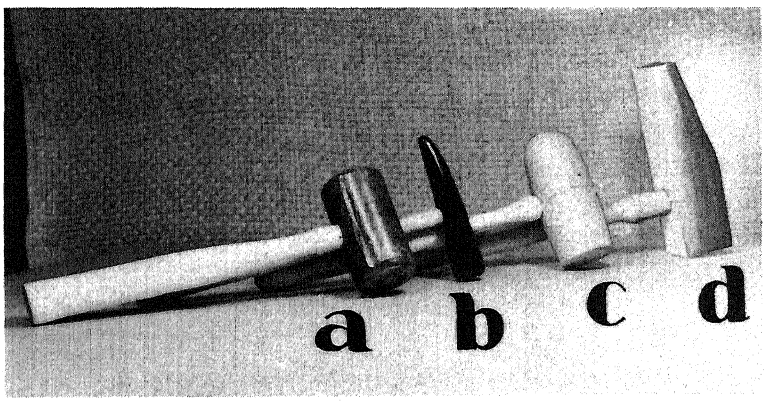
The type of hammer ordinarily used in metal work is known as the ball-pein hammer, and it has one flat end and the other end smaller and ball-shaped, hence its name ball-pein. This type of hammer comes in various sizes, and the type shown in the illustration Fig. 8 should be used. Other types of hammers, used for special purposes, will be discussed when we describe those particular phases of pewtercraft.

FILES

A file that has one side curved and the other flat is the type most serviceable for the beginner. This is known as the half-round file and is illustrated in Fig. 9. The flat surface is used for filing any straight or curved edges. The curved surface is used for filing all inward curves. It is essential for the craftsman to have at least two half-round files in his tool chest. One can be just an ordinary file of the smallest size, and of a relatively fine cut, and should be used to start the filing job. The second file should be of medium fine cut, to be used for finishing the work. This has the same shape as the file shown in the drawing, but is much smaller. Additional files can be added to one's tool equipment as required.

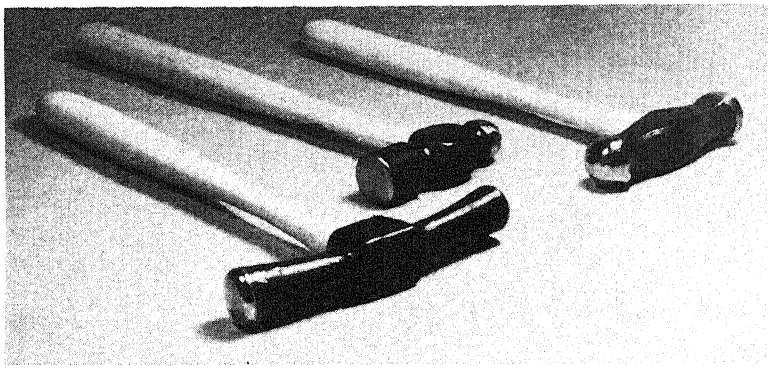
DIVIDERS

Dividers shaped like ordinary compasses are used in pewtercraft for drawing all circular outlines required in making a pewtercraft project. They are also used for mark-



Courtesy William Dixon, Inc.

FIG. 7. (A) Flat-faced mallet. (B) Horn mallet used for embossing. (C) Rounded end mallet. (D) Dogwood mallet used for numerous bending and forming operations



Courtesy William Dixon, Inc.

FIG. 8. Hammers used in pewtercraft

ing off the circular flat bottoms of bowls that are to be shaped. However, dividers are not absolutely necessary; the handy craftsman can always make a pattern on cardboard of the circular outlines of the project he is working on and trace these patterns around on the metal, thus eliminating the purchase of dividers where economy is of paramount importance.

SCRIBERS

The craftsman can even do without this simple little tool which is used for scratching the outlines of the design on the material, for he could use any sharp point for the purpose. An awl with a sharp edge which is usually called a scratch-off can be used instead of a scriber, and even a nail can be used if the necessity arises.

CENTER PUNCH

This tool is used to make a slight dent at the point where the tip of the drill is to catch before drilling a hole in a piece of metal. If you do not make a slight dent with a center punch, the drill is apt to slip on the smooth surface of the

pewter. A center punch should always be held upright when the indentation is made, and the tool should be struck very lightly with the hammer. A center punch is, also, not absolutely necessary in the equipment of the beginner. An ordinary large nail can be used instead.

DRILLS

The usual type of drill for boring holes in pewter or other metal is the one shown in the photograph, Fig. 10. With this drill one bores the hole through which the saw blade has to be inserted for any cutout or fretwork and for sawing out any inner parts of the metal. Drills can, if necessary, be secured in any 5-and-10-cent store, but they are not especially recommended, because the drill points furnished with cheap and inferior drills are altogether too coarse for fine work with pewter. In the numbering of drill points, the higher numbers always specify the finer points. For pewtercraft one should use a point as fine as No. 54 when drilling

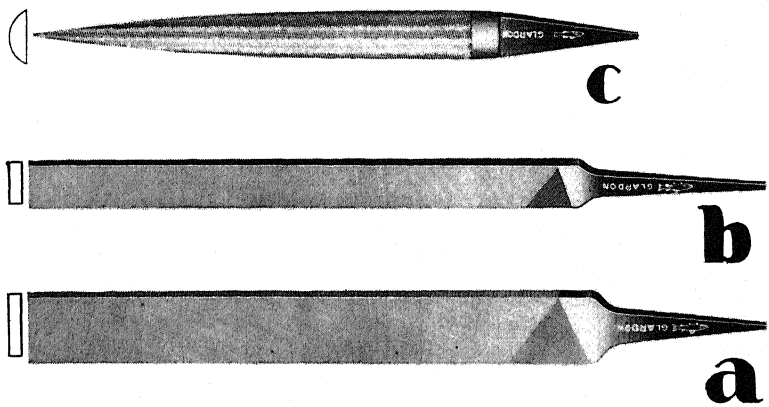


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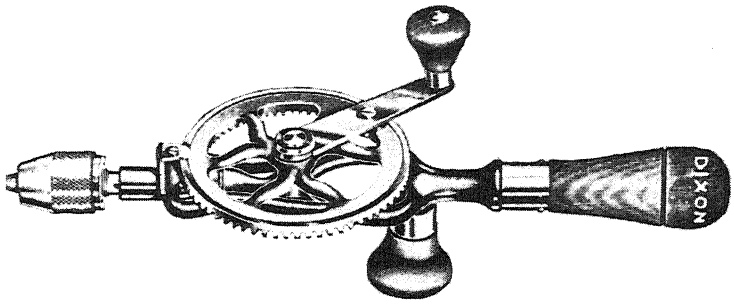
FIG. 9. Files suitable for pewtercraft, A and B being of the flat type and, at C, the half-round file



Courtesy William Dixon, Inc.

FIG. 10.

the first hole. After starting the hole with this finer point drill, you can insert larger point drills to enlarge the hole to any required size.

Supplementing all these tools, the craftsman should secure a supply of a fine grade of steel wool, some emery paper, some fine emery cloth, and some soft cloth to be used for the final cleaning and polishing of the completed project.

The tools and general equipment described in the foregoing paragraphs are about all that are required for the beginner. Other tools and additional equipment, which may be needed for some of the more involved processes, will be described in the order in which they will be used.

At this point, it is fitting to remind the craftsman that a good worker always keeps his tools in good condition. Tools used in pewter working should be free from dents. All edges of sharp tools should be kept sharpened and polished with fine emery cloth or emery paper. When it is necessary to lay the tools away for some time, all metal parts should be protected with a rust-preventing coat of light machine oil.

CHAPTER 3

Cutting, Filing and Sawing

AFTER you have acquired the various tools described in the previous chapter, it is good policy to practice their correct use. For this purpose, a sheet of pewter, approximately 12″ square in the 14- or 16-gauge, should be secured. The author recommends this gauge for the beginner, although it is a trifle thinner than that usually selected for making a practical project. It is splendid for practice of the various processes and methods to be described. Cut this 12″ square into two pieces, one of which should be about 6″ and the other about 4″ square. The remainder of the material can be cut up into two or three smaller pieces and these used for practicing the other processes, such as cutting, sawing, filing, and denting. The 6″ square can later be used for making a large bowl or tray, and the other for a smaller one. When practicing with this material, any of the pieces that are bent can be flattened again and again.

CUTTING THE METAL

The first process one should learn in metalcraft is how to cut the material. Before attempting to cut your sheet of

metal, make certain that it is perfectly clean. It should be cleaned with some fine steel wool, and, if the surface is not absolutely even, it can be flattened out by placing it between

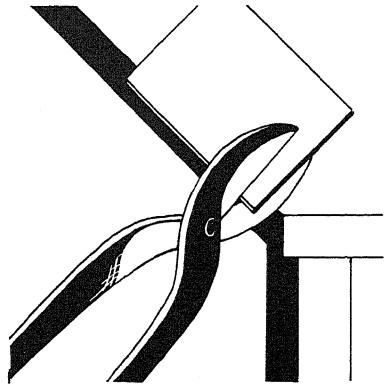


FIG. 11. Cutting the pewter

two small boards and pounding the upper one slightly with your wooden mallet.

Always make a cardboard or paper pattern of the shape that you are going to curve your metal into, before actually cutting the material. Metal workers call this pattern a "template." When practicing cutting the metal, make two templates of the two squares to be cut off. Now, in placing the template on the metal, be very careful to avoid any waste of the material, and mark around the entire outline of the template on your metal with a pencil. These pencil marks can easily be erased, so scratch them over lightly with your scriber or any other sharp pointed instrument. If the outline you are going to cut out is curved or of an irregular shape, first cut a square or oblong of the *approximate* size required. This square, or oblong, will be much easier to handle when you start cutting out the exact curve of the outline.

The shears described in the previous chapter are used for

cutting the metal. They are held upright with the lower blade resting diagonally on the edge of the metal. This position which is shown in Fig. 11 steadies the actual cutting. Now open the blades of the shears wide, put the metal in as far as possible, and (holding the metal with the left hand) use the right hand to bring the blades together. Never use both of your hands for cutting, for this puts the metal out of shape. To continue the cutting, bring the uncut part of the metal down again between the blades in the same manner as when you started to do the cutting. In order to do this, it will sometimes be necessary to bend up one side of a part that is already cut, but this is all right for pewter can easily be flattened out again afterward.

As we stated previously, you will remember that straight shears will cut only straight lines. If your outline is curved you must use curved or, if you have them, Universal Shears. If you have only the straight shear make a straight cut as near to the necessary curve as possible. When you complete your straight line cutting, the curved outline can be sawed out according to the following directions.

After cutting your metal you will see that the cut edges are quite sharp. For that reason, be very careful how you handle them. Do not leave them sharp, but file off the edges along the top and bottom so as to blunt them.

FILING

The half-round file, described in a previous chapter, is best adapted for all ordinary filing operations in pewtercraft. Use a small fine-cut regular file first, for any of the heavier filing you have to do, then finish off with the small, half-round jeweler's file. This procedure is recommended because jeweler's files are so small that they are very easily

broken. As a rule when filing, the file is used at an angle of about 45 degrees to the edge. This angle, of course, may be varied as required.

The piece of metal to be filed is placed upright in a vise, or it should be braced with the operator's body against the bench while the edges are being filed. When filing, be certain that your strokes are slow and even, using the middle part of the length of the file and pressing only with the forward or downward motion of the tool. *Never* attempt to file back and forth. When using the ordinary regular type of file make certain that you hold it with the right hand by the upper edge, with the right forefinger along the cut, placing the first and second fingers of the left hand on the forward end of the file so as to guide it properly and to retain the proper amount of pressure. The small jeweler's file which should be used for finishing off the work is so tiny that it can be held entirely in the right hand, but the position of your forefinger along the top of the file should be exactly the same as when using the larger file, and approximately the identical directions should be followed for filing. When

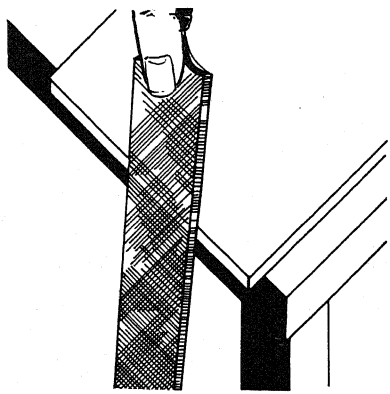


FIG. 12. Filing

filing pewter, which is a relatively soft metal, chalk or charcoal should be rubbed on the file so as to prevent the metal from clinging to it.

In some projects, where a bevel edge is required, the file should be held at an angle of about 90 degrees to the edge of the metal. Firm, short, downward strokes should be used to file down the edge to the bevel required. (See Fig. 12.)

Files are also useful to file away small, out-of-the-way corners which are difficult to saw out with a saw. When doing this type of filing, the tool should be held absolutely vertical and all filing done with a sawing motion. You will require a piece of fine emery cloth and emery paper wrapped around the file or around a small block of wood to finish off all filed edges.

SAWING

As sawing is an important phase in the art of metalcraft, the beginner should practice it until he has attained some degree of skill before sawing on any practical project. Use a No. 2 or a No. 3 blade; this blade should be fastened in your jeweler's saw frame with the teeth edge facing outward, and with the teeth pointing in a downward direction through the handle. Due to the small size of the saw, you cannot see the teeth, but you can quickly ascertain the direction of them by pressing a finger along the edge in any single direction. You can then feel the little teeth catching and pricking your finger or if you run your finger along the opposite direction they will feel smooth. The blade should be set in the jeweler's frame so that the teeth catch when you run your finger up the blade. Before beginning to cut any of the actual metal, ascertain that the blade you are using is absolutely tight or "taut." A loose blade will always

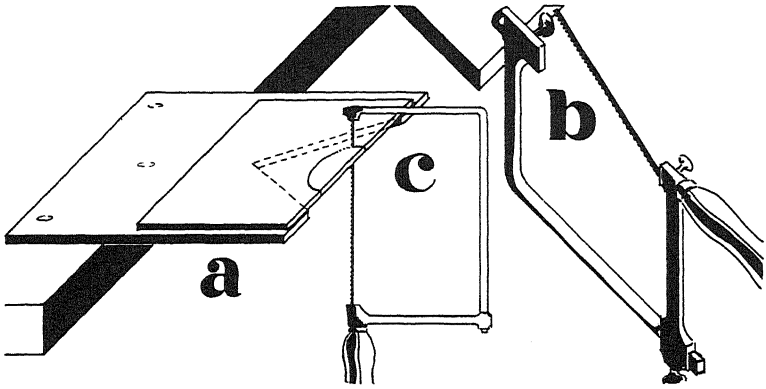


FIG. 13

break when caught. First, fasten the lower end of your blade in the bottom of the frame near the handle; then, holding the frame in a horizontal position in front of you with the handle of the frame against your body, the further end of the frame should be held against the edge of your bench or table and a little pressure exerted forward toward the handle. This will slightly contract the opening for the blade. (See B, Fig. 13.) While you are securing the other end of the blade in the top of the frame, tighten your screws. The pressure should then be relieved and the blade will be taut.

To saw out fretwork designs you will require a V-shaped sawing board, as shown in the illustration, Fig. 13. The method employed for sawing out fretwork designs will be described later. You can easily make one of these sawing boards by cutting a V-shaped opening, about 2″ wide on the outer end and about 4″ deep, out of any piece of good hard wood. This can be nailed or screwed to your work-bench in such a manner that the V-shaped opening projects out from the edge. (See A, Fig. 13.) If desired, you can

clamp this sawing board onto your work table and use when needed. When not in use, it can be put away. When using the V-shaped sawing board, the material to be cut out is placed on the open V and the sawing is done in the opening, as shown in the illustration, Fig. 13 (C). When you desire to saw out an outer line, the sawing board is not needed, for then the metal can be held on the right end of your working bench, with the part to be sawed out projecting over the edge.

Always hold the material with your left hand and use the right hand for the actual sawing. If an end of the line to be sawed comes out to the edge of the piece of metal, the metal should be turned so that the point is in front of you. However, if an outline is to be sawed, no part of which touches the edge of the metal, the nearest point of approach should be turned towards you, and should be sawed in a slanting or curved direction so that it meets the line to be sawed. Never approach the line at a sharp angle, for it is impossible to turn your jeweler's saw frame abruptly. When using the saw, always hold it in a vertical position with the handle below the metal surface, making short quick strokes and using only about 2″ to 2½″ of the blade near its center, rather slightly below the center than above it. Never slant the saw. This always causes blade breakage.

It is never necessary to put any forward pressure on the saw, since the weight of the saw frame itself will provide all required pressure. Simply keep moving the tool vertically, with a rapid up-and-down motion, the *actual* sawing being done only on the down stroke. If the line you are sawing happens to be sharply irregular or zigzag, just saw near the line leaving all irregular details to be filed out later. This also applies to any sharp angles, such as will be found at

corners of the material. When sawing the pewter at these corners, the initial cuts should be curved at these points in the first sawing. If you happen to have to saw small curves don't stop or even slow down on these small curves, but, on the other hand, increase your speed of sawing, keeping the metal turning with the left hand and also the saw turning very slightly so that the curve is actually made in some measure by moving the metal and by also turning the saw slightly.

Sharp corners are especially troublesome to a beginner. First, saw the metal away in a curve, as close to the corner as seems practical; and then, with a second sawing, saw out the little corner section that remains. This can easily be done by sawing along one straight line of the remaining small section right up to the point of the corner, then withdrawing the saw not by pulling it out, remember, but by continuing the up-and-down sawing motion while gradually pulling the handle toward you until your blade is freed from the narrow space. Start your sawing into the corner again from the other straight side and you will find that the corner will be sawed out accurately.

Inexperienced craftsmen will find that their saws will occasionally snap. This may be due to several causes of which the most important are as follows: (1) The blade may be too coarse for the metal you are cutting; (2) you may not have inserted the blade with the teeth pointing in the correct direction, that is, downward; (3) the sawing motion may be forced or jerky, or you have slanted the blade or turned it at too abrupt an angle; (4) the blade may not have been taut enough.

When you saw your first piece of metal, you will note that the sawing forms little shreds of the metal that cling to

the top and bottom surfaces of the sawed edge, making it feel rough. In metalcraft this is technically called a "burr." This burr must be removed, and it is easily done with a file. After carefully examining a piece of sawed pewter you will find that the burr is not actually a part of the metal surface itself but merely tiny shreds that cling to the edges. So remember, when removing the burr, not to file the edges, but just remove these little particles clinging to the edge. Be sure to work with a straight up-and-down motion with the file against the edge approximately in the same position as that pursued when sawing, and you will find that the burr will be picked off the edges of the material by your file. When you are filing off the burr, you can correct any irregularity or imperfection that has occurred in sawing the line. Always be certain to use a flat side of a half-round file for your straight edges and outward curves, and the half-round side for the inward curve.

CHAPTER 4

Bending and Curving

PEWTER has the distinctive advantage of being extremely malleable and very easily hand-bent at right angles, or even rounded into any type of curved shape without any undue effort. Of course, certain procedures must be followed closely, when bending pewter. But, if only a few elementary principles are observed, the beginner will encounter no difficulty in bending pewter to any shape required.

The easiest type of bend to make in pewter is a right angle bend. To do this one must first draw lines, on both sides of the metal, exactly where the bend is to be made. Right angle bending should be done on a sharp, straightedge, preferably a block of good hard wood. The block, remember, must be deep enough or it must be so placed on the workbench that the part of the metal which is not to be bent over is able to lie flat against the back of a block. The block should be as wide, or even wider than, the piece of metal to be bent.

Never use a metal hammer for bending pewter. Pounding pewter with a metal hammer will not only harden the pewter but will mar its surface with marks of the hammer.

For bending, a wooden mallet, such as the type illustrated in the foregoing chapter (and shown at C, Fig. 14) should be used. If you have provided yourself with a mallet, one side of which has rubber instead of wood, that would be even more preferable than the all-wooden mallet.

Holding the metal flat against the back of the wooden block with your left hand, and with the mark lined for the bend exactly on the edge of your block, stand facing the upright metal surface which has to be bent forward. Now, hold the mallet by the end of the handle and make the necessary strokes with a swinging motion, giving at first a few, quick, heavy blows on the back of the metal just about an inch above the marked bending line, so that the bending of the metal is started over toward you. Then continue by working nearer to the bending line. (See A at Fig. 14.)

You will note that, after the first starting blows, the rest of the strokes should be rather light and made with a forward sweep in the direction the metal is to take eventually. After you have made a few of these blows, facing the metal surface which by now has been bent slightly forward, bring your mallet down as near to the bending line as you possibly can and then bring it forward in your direction over the bent surface. In this manner, your strokes should make an even regular line. Continue with this stroke until the entire surface of the metal has been bent over. Now, change your position to the side of the block and, still keeping the bending line on the edge of the block, continue by pounding with vertical strokes right along the line, until the metal has assumed an even and a sharp bend.

In the construction of larger projects you will, at times, have to make a rather long bend, that is, one more than 6 or 7 inches in length. When this condition arises, it is

advisable when you first start the bend to give the pewter a quick sharp stroke at each end of the line, making in this manner a little dent. These dents will serve to hold the metal against the block and facilitate a straight bend in a long line. This method is especially helpful when bending a long narrow edge, such as is found on a tray or similar objects.

When making a letter rack or a similar article, your project will require a second bend. When such a bend is required, a wooden block of the correct size must always be placed in the angle of the first bend and the second surface to be bent lapped over the edge of this block. (See B at Fig. 14.)

In turning in an edge to strengthen it, you will have occasion to flatten an edge entirely over on itself. To do this, first bend the edge to the required right angle to the surface, in the same manner as previously described. Then, removing the metal from the block and with the turned-up edge facing you, the turned-up edge is pounded from the edge with strokes toward you, until it is entirely flattened against the surface.

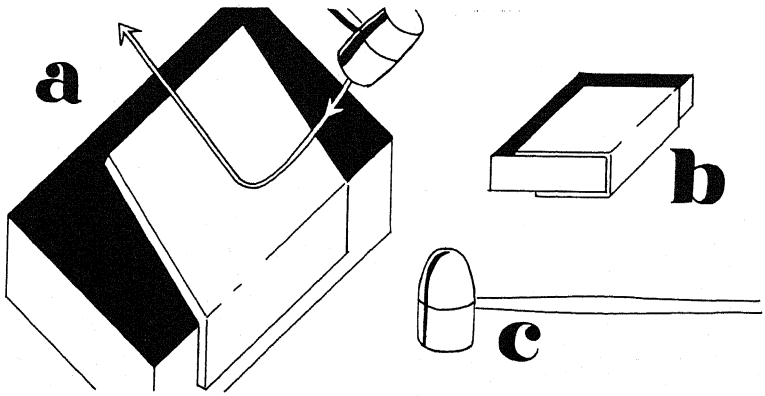


FIG. 14

When making bends with pewter be careful that they are correctly made, for, while the pewter can again be flattened out, it naturally entails considerable labor and is risky, as you might mar the metal.

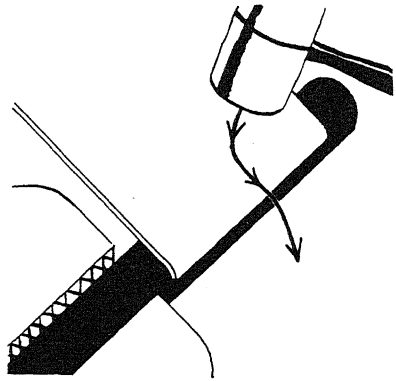


FIG. 15

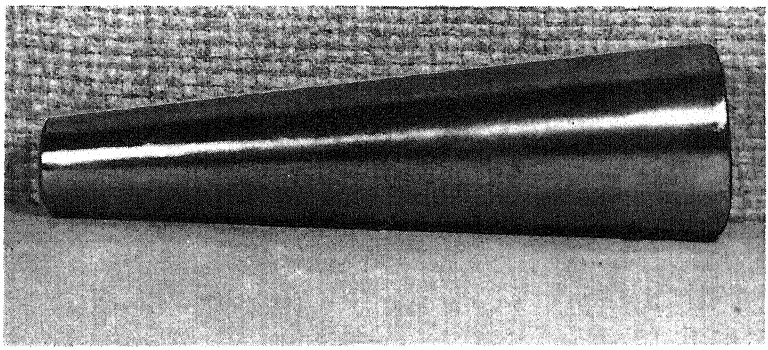
CURVING PEWTER

Instead of using the straightedge block that was specified for the making of sharp bends, you will require a rounded wooden or metal surface for curving pewter. Such rounded surfaces are known in pewtercraft as "mandrels." The regular wooden mandrel is graded from a large to a smaller end very similar in shape to that of a baseball bat. In fact, in the absence of a mandrel a small-sized bat makes an excellent substitution. But any rounded piece of hard wood, or even metal, can be used. For instance, one can use a curtain pole, or a rolling pin, or even a round leg of an old table. (See Fig. 15.) It should be borne in mind that the circumference of the rounded surface should be large enough to afford a strong surface on which to hammer. But, of course, it shold not be too large, for the rounded

article being made must of course fit onto it for the final finishing.

The first step in curving our metal is to secure the mandrel lengthwise in a vise. (See Fig. 15.) If the mandrel happens to be graded from a wider to a narrower end, it will be necessary to insert small pieces of wood in the narrow end in order that it may be held firmly in the vise.

Making certain that the mandrel is firm in the vise, the pewter should be held on the mandrel with about an inch of the metal protruding directly in front of the point where the flat metal touches around the surface of the mandrel. For curving, use a flat-ended wooden mallet. Hold the mallet by the end of the handle and make your hammering strokes with the same easy swinging motion as previously described for straight edging operations. The metal should be struck with the strokes coming toward you. Striking the protruding end of the metal just in front of the point where it touches the mandrel, bring the strokes forward over the little metal edge, as indicated by the arrows in the illustration. Never make the strokes too heavy, but gently form the small end into a curved shape.



Courtesy William Dixon, Inc.

FIG. 16. Type of mandrel used for curving pewter

When this first section of an inch has been curved, move forward another inch of the metal and proceed to shape it in the same manner. After one end of the metal strip has been rounded, the metal should be turned around on the mandrel and the other end shaped in the same manner. When both of the ends have been curved, the sides should be pressed so as to close both of the ends. If desired, as in bracelets, for example, the ends are usually left somewhat apart. After this has been done, place the rounded metal on the mandrel to round out the shape smoothly. This final work is done by pounding the pewter with quick, straight, vertical strokes with the mallet, while it is kept moving around on the mandrel.

CHAPTER 5

Executing Pierced Designs or Fretwork in Pewter

UNTIL you attain a certain skill in the various operations involved in handling pewter, concentrate (at least for the first few projects) on making flat objects such as paper cutters, blotter corners, bracelets, watch fobs and articles of a similar nature. Any of these comparatively simple projects can be very effective by decorating them with either fretwork or pierced designs.

If, for your first project in pewtercraft, you wish to make a simple article—a paper cutter, or a bracelet—secure a piece of metal in the square or the oblong shape cut to the approximate size required for the object. The exact outline of one of these small projects should never be cut out until all fretwork, or pierced design, has been completed. The cut edges should be filed along the top and bottom, and smoothed off, as per directions given in a previous chapter. The metal should then be cleaned with

steel wool and flattened out. Pewter can easily be flattened out by placing it betwen two boards and hammering with the mallet or hammer until the metal is straightened out.

It is advisable for the beginner in fretwork to confine himself to simple designs, avoiding all intricate or fancy effects. In fretwork, the metal surrounding the design and any of the little places within the design itself should be sawed out.

First draw or trace the design on a sheet of brown paper. While a design for this type of decoration can be drawn directly on the pewter with a pen or pencil, it is better to make it on paper first and then to trace it on the metal with tracing paper. To transfer a design of this type, place a sheet of heavy pencil carbon paper, face down, on the metal under your drawing and go over the design with a very hard blunt-pointed instrument or hard drawing pencil. Bear in mind that the metal must be absolutely clean, otherwise your tracing will leave no impression on the pewter. A darker impression can be secured if you heat the carbon paper and use it while warm. Pewter at times will not take a carbon impression, so, to facilitate transfer of the design, apply a coating of Chinese White water color on the metal before tracing. When dry, it will take the carbon impression, and can be washed off easily after you have scratched the outline over with a fine sharp scriber, or similar sharp point.

Having traced the entire design on the pewter, select one of the little points, which have to be sawed out. This should be at some point right within this little area, preferably near a part of the outline, but, of course, not too close to it. A dent should be made at this point with a center punch or an ordinary nail. Now, using one of your

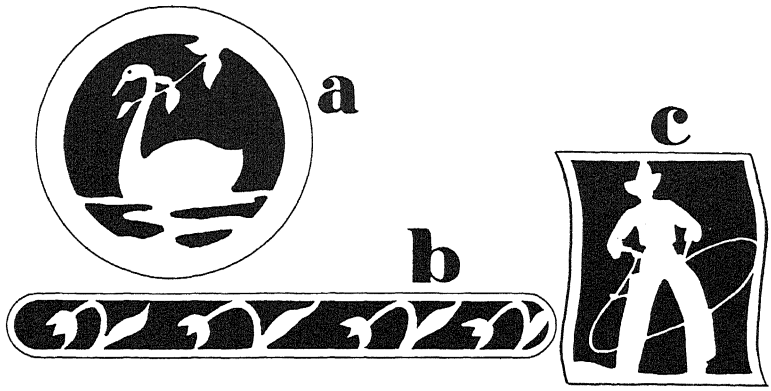


FIG. 17. Three designs suitable for fretwork

fine drill points (about No. 54), a hole is bored through the metal at the dented point. Using a coarser drill point, enlarge the hole which you have just made. In a similar manner, dent and drill holes in all the other areas to be sawed out. In the illustration, Fig. 17, is given a number of suggested designs suitable for fretwork. You will note that the areas to be sawed out are indicated by shaded lines.

Now, according to the gauge of the metal you are using, select a No. 2 or No. 3 saw blade. Fasten the lower end in the saw frame as directed in a previous chapter. Then put the saw blade through one of the holes that have been drilled in the metal, passing it through from the underside of the pewter so that the top section, with the design on it, faces the upper part of the saw frame. Rest the handle of your saw frame against you, and keep the top edge of the frame against the edge of the blade. Place your work on the V-shaped sawing board, as described in a previous chapter, with the metal, resting on top of the V, and with the handle of the saw under the metal. Now, start from the point where your saw blade has been turned through

the drilled hole. Saw in either a slanting or a curved direction until the outline has been reached. Continue sawing along near the outline. Be careful when sawing that you do not try at first to saw out all of the small intricate details of your outlines. At irregular places, just saw along as near to the outline as you can get.

After the general outlines of the different little areas have been sawed out, the pieces of metal will fall out. It will then be comparatively easy to saw, or, better still, file out all of the sharp lines at any of the tiny irregular places hard to get at with the saw.

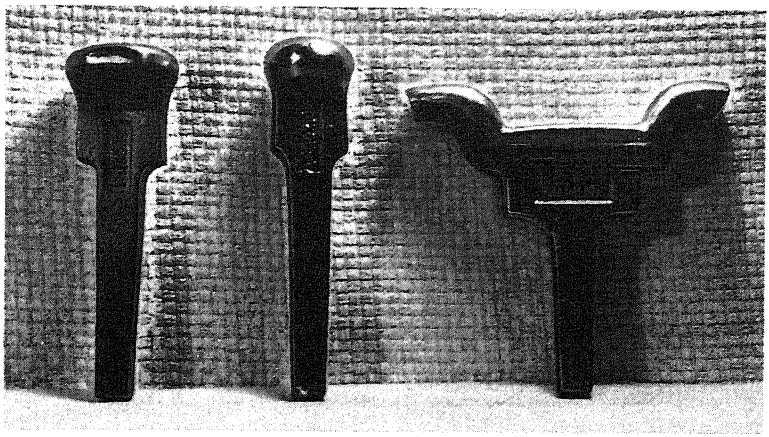
As each one of the areas are sawed out, the top of the saw blade has to be unscrewed again and reinserted through a drilled hole in another area, following the same procedure as given in a preceding paragraph. Now, after all these little areas have been sawed out, the "burr" should be removed with a half-round jeweler's file. When your design has been completed, cut out the outline of the article with your shears and file off along the cut edges along the top or the bottom; saw out the outline required; and, of course, remove the burr. Finish off by smoothing all edges with fine emery paper or emery cloth.

CHAPTER 6

Forming

OF ALL the metals used in metalcraft, pewter is the most malleable. For this reason it is better adapted for the use of the home craftsman in making projects that require forming, such as bowls, trays, and similar articles.

Professional craftsmen do their forming, which really is a method of pounding and stretching the metal into the shapes required, over the tops of "stakes." These are usually made of hard wood or metal with various shaped heads. Stakes, a number of which are shown in the illustration, Figs. 18 & 19, must be secured upright in a vise and the metal being formed is usually transferred from one stake to another as its shape is changed during the progress of the job. Home craftsmen can't do all of the work with stakes; that method requires quite a lot of experience, in order that each blow be made with telling effect, plus a required knowledge of the action of various metals that are to be used. However, while we are showing the various stakes used in the illustration, the most practical method for the beginner is to do his shaping in hollow wooden molds and to use some of the stakes illustrated in the photo-



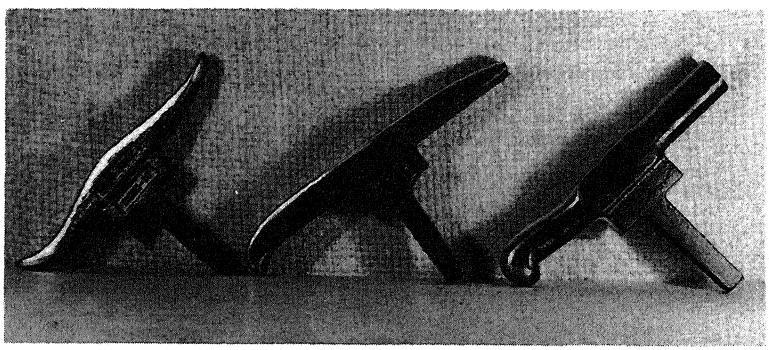
Courtesy William Dixon, Inc.

FIG. 18. Stakes used for forming

graph as supplementary to his work with molds. The use of stakes will be explained in the latter part of this chapter.

WOODEN MOLDS

The wooden molds shown in the illustration, Fig. 20, are machine-turned depressions of different shapes and sizes. These inexpensive molds can be secured from any



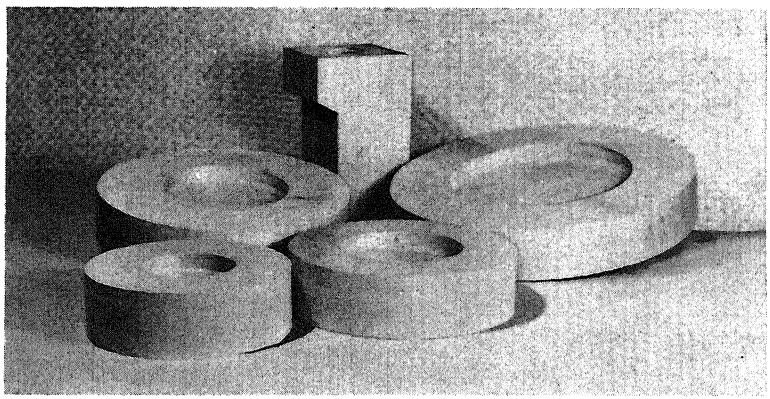
Courtesy William Dixon, Inc.

FIG. 19. Stakes used for forming

dealer in artcraft supplies. They are quite simple to make and can be gouged out of blocks sufficiently large to afford a good working surface. They should be at least 3″ deep with a surface which can be either round or square, depending on the shape in which the craftsman wishes to form his pewter. The assortment of molds shown in the photograph are comprehensive enough for making most projects of which the beginner would be capable.

DETERMINING SIZES OF MOLDS REQUIRED AND ESTIMATED SIZE OF PEWTER NEEDED

To form a tray or a bowl, the forming should be started in a shallow mold not more than about ¾″ deep and about the same top width and length as the piece of metal. Now, if the depression of the project is eventually to be deeper than the first mold used, it is easy to understand that it will also become narrower and that the work, of necessity, must be transferred to a slightly deeper and narrower mold, continuing from one mold to another until the desired depth has been secured. It should always be borne in mind that



Courtesy William Dixon, Inc.

FIG. 20. Wooden molds used for forming

metal is stretched during this forming process. So the final mold will have a diameter about equal to the width of the original metal, minus the depth to which the bowl has been eventually depressed. Of course, this must always be an approximate measurement as the amount different metals, especially pewter in the various gauges, will stretch, varies.

Another point to consider is that one craftsman is liable to stretch a piece of metal much more than another worker might do. Therefore, in estimating as nearly as possible the exact size for cutting any circular or oval disk (for instance, let us say a bowl or tray without a brim), it is good policy to add the diameter desired for the top to the desired depth. If you desire to make a round bowl about 6″ wide at the top and 2″ deep you will require a metal disk of approximately 8″ in diameter. If you are a beginner, do not attempt a bowl or a tray of a depth more than 3″. It would be good policy to try a depth of considerably less than 3″, preferably around 1½″. Remember, also, that if your bowl or tray is to have a brim around it, twice the width of the brim must be added when you compute the diameter of the disk.

STAKES

You will notice that, as you pound your metal into the mold depression, the outer edge of the metal will form into ruffles or "kinks" as we call them. These, of course, have to be pounded out. For straightening out these kinks, the metal must be taken from the mold and placed face down on a wooden stake.

For hammering out the kinks produced while forming your metal, a stake with a rounded head is the best one to use. It can be made by merely rounding off an end of any piece of hard wood about 2″ or 3″ thick and from 6″ to

8″ long. A small sized baseball bat makes a swell stake. The rounded edge will serve for the top and if you cut your lengths off to about 8″ it will be just about right.

SELECTION OF PROPER GAUGES FOR BOWLS AND TRAYS

If you have started with an experimental piece of pewter, as suggested earlier, you will find that you have two pieces with which to experiment, one 4″ and one 6″. The 4″ one should be used for your first forming experiment. The larger piece can afterward be made into a larger bowl and perhaps used for experimenting in either planishing or fluting as described in a later chapter. As previously stated, for bowls or trays use gauges No. 16 to No. 18.

MAKING A ROUND OR OVAL SHAPED BOWL WITHOUT A BRIM

Following the directions given in the earlier part of this chapter for estimating the size of the bowl, make a paper or a cardboard pattern (template) the exact size of the surface or oval of the metal that is required. Now place the template on your metal, marking around the outline with a pencil and then passing over your pencil line with either a sharp nail or a scriber. If your outline happens to be a perfect circle, a template is not needed as you can draw a circle of the required size directly on the metal with your dividers. Now saw out the outline, following directions given in a previous chapter on sawing, filing, and cleaning. Now thoroughly clean the metal and flatten out between two boards.

As previously stated, the depression in the mold on which you start the actual shaping work should be shallow—not more than ¾″ in depth—and, of course, about the same width as the metal (a little more or less does not make any

difference). Now place the bowl on a low table or workbench so the top of the mold is just about 8″ below your waist line as you stand in front of the worktable. With the

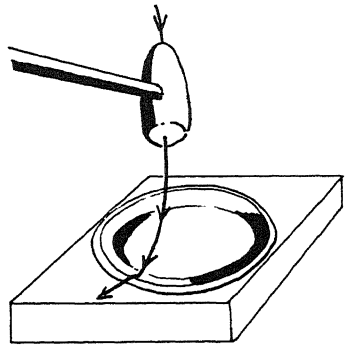


FIG. 21. The disk of metal should rest on the end of the depression in your mold. The arrows indicate the direction of the blow

left hand the sheet of metal should be held over the hollow of the bowl with the front end of the metal just lightly resting on the flat surface of the mold. Use the broader end of the rounded wooden mallet, shown in the photograph, Fig. 7, or the round end of the mallet also shown in the photograph. Never use a metal hammer for this phase of the work. Now, holding the mallet by the end of the handle, the metal should be struck with a forward stroke, with the blow landing about ¾″ or less below the rim so that successive blows shape the metal toward the front of the depression in the mold. Never pound vigorously, but rather bring the mallet down with a decided swing against the metal. Now, turning either the metal or the mold for each successive blow so that it is not necessary to change the direction of the blows, continue all strokes at approxi-

mately the same distance from the edge until you have followed around the entire outline. The illustration, Fig. 21, shows how the disk of metal should rest on the end of the depression in your mold. This is indicacted by small lines. It also illustrates the direction of the blow.

You will note that after this first circle of blows the bowl has started shaping. But it will also have caused the ¾" space of metal above the blows to form into ruffles or kinks. These must be flattened or pounded out before proceeding. It is important that the flattening of the kinks be done after each successive circle of blows, for this flattening helps considerably in forming the required shape. If the forming is completed before removing the kinks, they will become deeper and deeper, and finally will require such heavy blows to flatten them out that you may crack the metal in doing it.

For the removal of kinks the work should be held straight down on one of the rounded wooden stakes described earlier. A side view of the bowl on the stake is shown in Fig. 22 to illustrate more clearly this phase of the work. As in all other processes of forming, the part of the pewter on

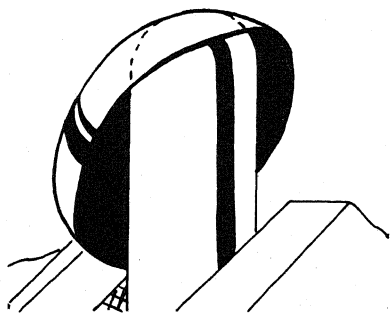


Fig. 22. Removing the kinks by holding the work straight down on one of the rounded wooden stakes and pounding with the flat end of the wooden mallet

which you are working must be directly in front of you, and the kinks must be pounded with the flat end of the wooden hammer using straight downward strokes. After this first row of kinks or ruffles has been flattened out, the work can then be placed back in the mold used or, if required, in a deeper and narrower one and second circle of blows made just below the first row.

An important thing to remember is that, when making the second circle of blows and all subsequent circles, one must give special attention to the stroke used. The mallet should be held by the end of the handle in exactly the same manner as for the first row, but the strokes should be made even more gently and with a more decided swing. Always bring the mallet down on the metal directly in front of you, and eventually glancing toward you, over the front edge of the mold so that you will in this manner be making an irregular semicircle. Never use jerky, angular, irregular, or roughly pounded blows. Keep following through by making blows in successive circles around the metal, removing all kinks after each circle has been made before proceeding to a lower circle of blows. The transferring of the work to a deeper mold has been reached. Of course, during this process the bottom of the bowl will become curved.

FLATTENING THE BASE

To flatten the base of the bowl that you have just formed, a cardboard or paper template of a circular or oval-shaped design should be made. The template should be centered on the bottom of the bowl and the outline for the base drawn. If your base is to be perfectly circular, the outline can be made directly on the bowl (after finding the absolute center by means of your dividers) thus obviating the necessity of

making a template. The bowl should now be placed face down on a flat, curved-edge, wooden block narrower than the base. Using the flat end of the mallet with straight

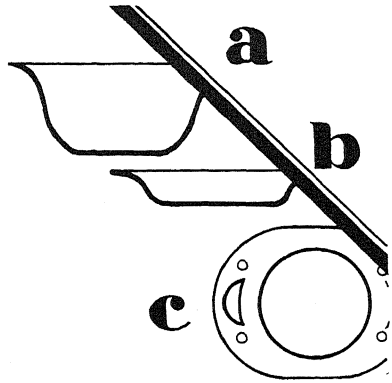


FIG. 23. Three types of bowls with brims

downward strokes, the base will flatten on the block.

At this point you may find that the top edge of the bowl is not even all around. If this is the case, mark off the correct outline with a pencil or scriber and file the edges off with your half-round file. If the bowl is oval in shape, the forming should be started in a round mold and the work then transferred to a mold of the size and the shape desired.

MAKING BOWLS OR TRAYS WITH BRIMS

If you have successfully completed the simple bowl described in the foregoing paragraph, try to make a round or oval bowl or tray with a brim of the type shown in the illustration, Fig. 23.

Make a template the shape and size desired, with the brim marked off on the template, closely following the directions given for estimating the correct size. Now cut out the metal according to the template you have made.

Draw the inner outlines of the brim on the upper surface of the metal. The molds used for bowls with brims are exactly the same as those used for bowls without brims. Holding the metal on a shallow mold, in the manner pre-

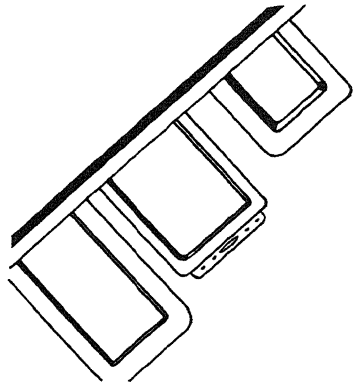


FIG. 24. Three types of trays with brims

viously described, but with the inner line of the brim just on the front edge on the mold, begin your shaping with forward blows of the mallet. These blows should be about ¾″ below the brim.

Again you will be confronted with the inevitable problem of ruffles or kinks. The work should be placed face down on a flat wooden surface and all kinks pounded out in the brim with the flat end of your mallet. Now place the bowl on a rounded wooden stake and remove any kinks which may have formed in the bowl shape. Continue making each successive circle in the same manner until the desired depth has been attained. After the bowl or tray has thus been formed, the base should be measured off flat and the outline of the brim evened off by filing where necessary. The brim can be left plain, or decorated or pierced in any desired manner.

Shallow trays of rectangular shape or any number of straight sides are formed with a wooden mold in approximately the same way as those that are round or oval. (See Fig. 24.) The mold used should not be more than an inch deep and should have straight sides of the dimension desired for the tray. These tray molds can be made by gouging out pieces of hard wood or they can be purchased ready-made. Rectangular trays can be made with a brim of almost any desired width. Of course, a paper pattern or template should always be made, and the size estimated, in the same way as for the rounded shape. The metal should be cut to correspond with the pattern and all steps preliminary to forming should be followed through.

After you have marked off the brim, the metal should be held with the inner line for the brim on the front edge of your mold, and the work started with forward blows about ¾″ below the brim, approximately in the same manner as when forming round trays. Continue until you have made one entire circle around the metal. This first row of hammering or pounding will cause ruffles or kinks in this brim just as it does in the round bowl and the kinks must be flattened out by placing the work face down on a wooden board and pounding with a flat mallet. Now, holding the tray nearly perpendicular to the board, with one side on the board and with the brim on that side over the front edge of your board, and the farther side of your tray tilted slightly backward, you can flatten this side and at the same time straighten the bend of the brim with the flat end of your mallet. Turning the remainng sides into this same position, flatten each of them similarly.

After doing this, you will find that the sides have been

formed in a sloping direction. If you desire to have the sides more nearly perpendicular, place the tray back in the mold and, with the broad end of the mallet, strike the sides against the mold. At the corners use the pointed end of your mallet to shape the corners by gently pounding them. When working with pewter, never try to get your corners sharp. It isn't desirable and it isn't practical.

Mark off the base as required, and flatten it by placing the tray face down on a flat wooden block of the correct dimension (slightly smaller than the desired base of the tray), and pounding it to the correct form with the flat end of a wooden mallet.

CHAPTER 7

Planishing

AFTER you have formed your bowl or tray, the outline can be trued up and the shape of it further perfected by placing the article on a metal stake and with a planishing hammer pounding it lightly. This is called, "planishing." The dome-shaped end of the hammer shown in Fig. 8 is used for this purpose; and for planishing it must, of course, be very smooth. When wielded lightly the hammer produces small round marks on the metal. If a slightly heavier stroke is used, the marks will, of course, be larger and deeper. In addition to truing up the shape, planishing, done as it is on a metal support with a metal hammer, tends to harden the metal, thus adding to its durability. The marking, when properly made, adds a professional decorative finish to the work.

Some craftsmen do not desire to have these hammer marks showing on their pewter work. In that event, the flat end of a chasing hammer, which is much lighter in weight, should be used for planishing. The process is exactly the same but the blows must be even more gentle than in planishing with a planishing hammer. A rounded metal stake,

quite similar in shape to the wood stake used in removing the kinks, is needed for planishing curved surfaces. A variety of these stakes were shown in Fig. 18. The work of planishing can be done while standing up or seated. In either case, the top of the stake must be in line with the height of the craftsman. An anvil or other flat metal surface similarly placed can be used when planishing any flat surface.

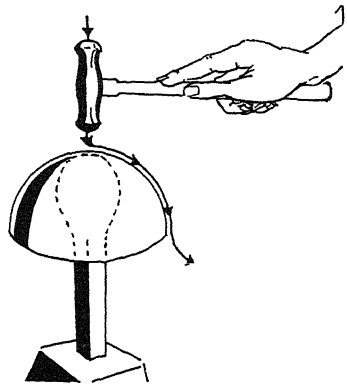


FIG. 25. Planishing

Before planishing, the article must be cleaned and polished thoroughly with fine steel wool to remove all grease spots or dirt. It should be remembered that any bowl or tray shape must be planished *before* the base is flattened.

The first step in planishing is to place the rounded article on the rounded metal stake with the center of its curve resting on the highest curve of the stake. This is done because all blows must be made just on the highest part of the stake. Hold the planishing hammer by the end of the handle with the right forefinger along the handle, and with the upper arm braced against the side to control the strokes. Start the strokes only slightly above the metal and, with

an easy swinging motion, bring the hammer down lightly at the highest part of the curve, bringing it toward you over the front of the metal surface as indicated in the drawing, Fig. 25. This forward glancing stroke is an essential part of the process required for truing up the rounded shape of the article on which you are working.

After your first stroke, the bowl should be moved ever so slightly on top of the stake, so that subsequent blows will fall quite close to the first one. The marks of the hammer should just touch but not overlap. No space on the work should be conspicuously unplanished: it is infinitely better to overlap your marks than to leave any bare areas. Now the bowl should be turned by slight degrees to the right or left, thus forming a circle of marks around the central one. This should be followed by moving the project so that another circle of blows will fall in the spaces where two adjoining round marks in the preceding row diverge from each other. Continue in the same manner, making concentric circles of hammer marks, until the entire surface has been covered out to the rim. Make certain that all your blows are light and even, and that the hammer is brought towards you in front of the bowl after each stroke.

Planishing requires a great deal of practice, and strict observance of the directions given, to do a really good job in placing all of the marks accurately and skillfully. It is very simple to spoil a good piece of work with poor planishing.

When planishing a flat surface, the work should be placed on an anvil and the strokes made directly in a perpendicular motion. It is not necessary to bring the blow forward after the metal has been struck, since the primary purpose of planishing flat surfaces of pewter is to harden the metal.

CHAPTER 8

Fluting

ATTRACTIVE effects can be obtained on a rounded surface of a bowl, or even on a flat brim, by making slight depressions at regular spacing. This form of decoration is called "fluting." It is a simple process, accomplished by shaping the pewter into a small groove filed out in the head of a wooden stake, which may have a flat, concave, or convex surface, according to the particular shape of the surface of your project.

THE MAKING OF FLUTING STAKES

A groove to be used for fluting can be made of any size required. Comparatively narrow and shallow flutes are not only good design, but also attractive. Flutes may be short or they can extend to the full depth of the bowl, or the width of the brim. A flute can be of exactly the same width and depth throughout its length, or it may become gradually narrower and shallower until it tapers away to almost nothing. Of course, the size of the fluting groove should be appropriately larger for larger articles. For instance, for bowls about 6″ in diameter or less a width at the edge of the project of about ⅜″ and a depth of about $\frac{3}{16}$″, which is tapered to about ⅛″, will be found rather attractive.

For the fluting of surfaces that are flat, naturally a flat-surface fluting stake is required. To make one of these flat-surface fluting stakes, use a block of any hard wood about 2″ wide and as deep as the groove is to be. The shaft should be about 8″ long so that you can hold the fluting stake securely in your vise. File out the required groove with any wood rasp or file, and smooth it finally with sandpaper. All

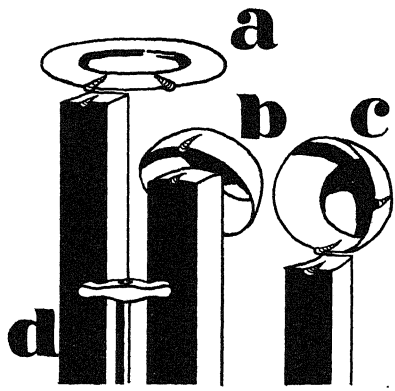


FIG. 26. (A) Fluting a flat-brimmed tray over a flat-topped stake. (B) Using a rounded stake to press the flutes inward on a bowl and (C) using another type of stake to press the flutes outward on a bowl

edges of grooves to be used on these stakes should be rounded and the bottom of the flutes just slightly curved. Any old legs or arms of chairs or tables that you may have around the house can be advantageously used for making these stakes.

A tray with its brim in position over a flat top stake is shown at A in Fig. 26. In this and the various other illustrations in the same drawing, you will note that all articles to

be fluted are shown elevated above the stakes so that you can see the heads of the different types of stake. Of course, when doing the actual fluting all of these articles should be held firmly down on the stake.

If you desire to make the flutes pressed inward on a bowl, you will require a stake with a rounded or convex circle. It isn't necessary that the curve of the stake or the flute be exactly the same as that of the bowl. The same stake can serve for bowls of various sizes and different shapes. Rounded or convex stakes are made in exactly the same manner as the flat stakes but with the surfaces rounded, as shown in 2 and 3 of the same drawing.

Bear in mind that all planishing which is to be done on any of the projects must be completed before any fluting is done. If the work has not been planished the article must be cleaned thoroughly before proceeding with the fluting. A good way of cleaning the project is to rub it well with steel wool and remove all superfluous dirt and extraneous matter. For fluting pewter, a wooden mallet shaped like a fluting hammer, which is shown at 4 in the same drawing, should be used.

Of course, you can place the fluting wherever you desire, but for a symmetrical position, measure closely around the rim of the bowl, or the outer edge of the brim, with a tape measure or a strip of paper dividing the entire length into as many equal parts as you wish for the number of flutes. All places where the flutes are to be made should be marked on the article by a line carefully drawn, indicating the flute center.

Now you are ready to begin the actual work of fluting your project. Secure the stake in your vise, with the outer end of the cut-out groove directly in front of you. Now

hold the article on the stake, with the line which has been drawn for the flute right over the middle of the groove and the outer edge of the metal flush with the front edge of the stake. Holding the fluting hammer or mallet near the end of the handle, at a direct right angle to your arm, and using an easy motion for your strokes, land your first blow just in from the edge of your metal, bringing the hammer toward you over the front of the stake in a rather irregular arc. Continue hammering, with each blow directly back of the previous one and with the hammer brought forward in exactly the same manner, until the metal has been gently formed into the groove.

Now, when flutes on the surface of a bowl are made wider and deeper at the edge and then tapered off, they will cause the upper edge of the bowl to be drawn in and somewhat narrowed. This section of the rim may be pounded out flat giving a rather petal-shaped effect to a finished project. This is shown at C, in Fig. 27. By placing the edge of the work on a stake that has a rounded front (shown in B in the same drawing), all sections of the rim can be hammered or beaten further, thus giving a turned

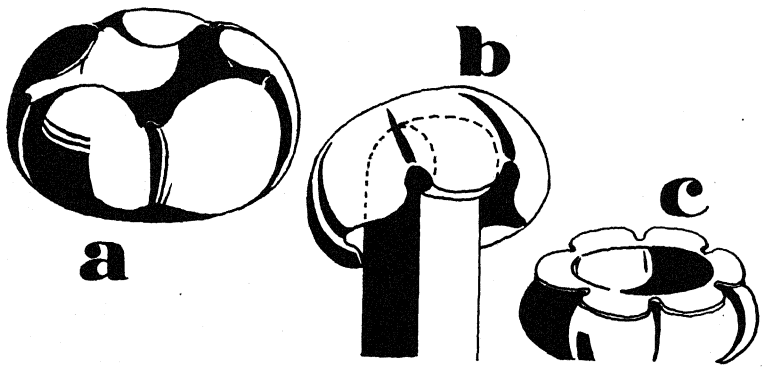


FIG. 27. Three other types of fluting

in effect to the work. The stake used in this particular phase of the work has been shown tipped in a rather forward position to give a clear view of the top. However, the craftsman should secure a stake in an upright position when working on it. Needless to say, the work should be held firmly in position on the stake while the rim is being hammered.

CHAPTER 9

Etching on Pewter

SIMPLE projects such as book ends, napkin rings, bracelets, etc., can be enhanced considerably by a method of decoration known in pewtercraft as "etching." The process of etching on pewter is very simple but the completed work can be very attractive. The scope of individual design is unlimited and one can exercise almost a free range in creating attractive monograms or designs which will add considerably to any pewter article.

PREPARING THE PEWTER FOR ETCHING

All surfaces of the metal to be etched must be thoroughly cleaned before tracing a design onto the pewter. The design to be etched can be drawn directly on the metal, or traced as described in a previous chapter. Of course, it is up to the craftsman as to whether he leaves the design exposed, which will result in the design being eaten into the surface, or whether he reverses the process. The latter is done more often—that is, the design is protected and all of the surface surrounding the design is eaten away by the acid, thus leaving the design in relief. If you choose the latter effect, be careful that you allow for a broader line around your design so as to define the exact limit of the etching itself.

The effects of both methods are illustrated in the drawing, Fig. 28. It is good policy to darken in on your design those parts which are to be the background, so that you may not be confused when applying the resistant, which in this particular case is asphaltum.

When you have completed drawing in the design on the metal, all parts which are not to be etched or eaten away must be protected with a coat of black asphaltum varnish, which is most commonly used for this purpose and is called the resistant. Black asphaltum varnish can be secured ready for use from any dealer in artists' supplies. If you cannot secure this particular type of varnish any black stove pipe enamel can be substituted for the asphaltum. Use a soft, preferably a No. 2 water-color camel's hair brush to paint over the parts which are not to be etched. If you have a larger surface use a larger brush. Apply the asphaltum with a smooth even coating, being extremely careful that all parts which are not to be etched (and this includes the back of the project) are well covered with the resistant. If the asphaltum seems to be too thick, it can be thinned by adding

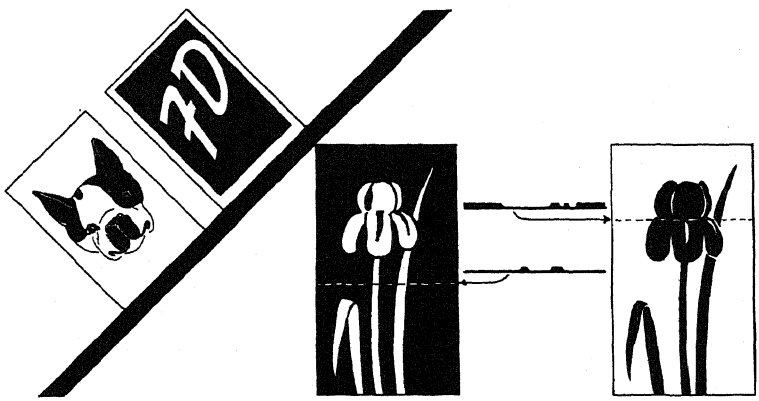


FIG. 28. Two methods of etching designs on pewter

turpentine. If you are using stove pipe enamel, thin the enamel with benzine. There are available in the market specially prepared etching resistants which can be used in place of the asphaltum or enamel.

If the design that you are using is on the bottom of a bowl or a tray, the mordant or acid which is the etching liquid can be poured into the bowl instead of submerging the bowl into the acid. This eliminates the necessity of covering all of the inside and outside of a bowl with the resistant. Merely paint a deep border on the inside of the bowl which is not to be etched far enough down the side to protect it from the etching mordant which is to be poured over the base.

Before applying the etching mordant, make certain that the asphaltum varnish is absolutely dry. This type of varnish or enamel usually dries in about two hours, but if possible, it is advisable to let it dry overnight. Before placing the project into the acid bath examine all of the asphaltum painted areas very carefully indeed, to make absolutely certain that there are no exposed, bare, or thinly coated places. If you happen to discover such places, give them a second coating of the resistant.

Be careful about every detail, for the delicate charm of a pewtercraft etching deserves all the extra attention you can give it. If it so happens that the asphaltum has, by some error, been painted in a place where you do not want it, or if any of the lines or outlines are not clearly or distinctly defined, you can correct all of these inaccuracies by removing the asphaltum, wherever it is necessary, with a little rag dipped in turpentine. After you have carefully checked all of the details given in the previous paragraph, and you are certain that the resistant is thoroughly dry, proceed

with the next step, by preparing the amount of mordant or etching acid which you will require.

A commonly used mordant is a solution made up of one part nitric acid to two parts water. If you do not desire to make up your own mordant, a very good one can be secured, already mixed in the proper proportion, from your local dealer. Keep your mordant solution plainly marked, for it is a strong poison. For etching use an enamel tray or receptacle without any chipped places. The best receptacles in which to do etching, are the photographic developing trays that you can secure in any camera supply store. In the absence of these you can use either an earthen ware or crockery dish but do not use any aluminum or any other similar metal ware.

If you are using prepared mordant follow the directions given on the bottle carefully. If making up your own, pour into the tray two parts of water and gradually add to this one part of nitric acid. Never put the acid in first; and be careful not to get any acid on your hands or clothes. Don't start experimenting with the strength of this solution, and do not use any stronger solution until you have attained some amount of proficiency in etching pewter. Be careful to do this etching in a room that is well ventilated, especially when using a large quantity of the mordant for etching a large article or for etching several projects at the same time.

If the project you are etching is a deep one, pour the mordant into the project; if not, place the project in the mordant. You will note that the acid will immediately begin to eat away all exposed metal, and will throw off light fumes. You will also note tiny bubbles rising from the exposed areas if the solution is of the right strength. However, if (after five or ten minutes) the acid seems to be bubbling

actively and throwing off heavy fumes, it is a sure sign that you have made your solution too strong. Additional water should be added immediately, pouring it right into the mordant and moving the article about with a stick so that the water mixes in well.

If your acid is of the right proportion leave the work in there for a little while simply moving the project a little once or twice with a stick so that the acid will eat over all of the parts evenly. In about three-quarters of an hour take it out, but be certain that you use rubber gloves when doing this; or you can lift one end out of the project with your stick and then lift it carefully with a pair of pliers. Now examine the project to ascertain whether your acid has eaten in sufficiently. If the action has started and it is not as deep as you wish it to be place the project back again into the acid. If, after three-quarters of an hour, there doesn't seem to be any sign of etching on the exposed area, it is a sure sign that your acid is too weak. So mix a little of a stronger solution, about half-and-half, and pour this into the original mixture. You will find that the addition of this new acid into the old will invariably start the action of the solution.

Inexperienced craftsmen will sometimes scratch off some of the asphaltum when handling the project. If this happens to be the case make certain that you wash the entire project thoroughly with water, then dry it with a soft cloth. After the project is dry, asphaltum should be applied to any of the scratched or bare places and permitted to dry before placing it back into the acid.

Keep watching any new solution which you have added to the old just as carefully as you did the first solution. If it begins to bubble too quickly or too actively, it is too

strong, and a little water must be added. After another half or three-quarters of an hour, remove the article again and carefully examine all etched places. It sometimes takes several hours to get the etching to the desired depth, but it is much better to use an etching fluid that is just strong enough to do the etching effectively than to attempt to speed up the process with a stronger solution. Besides, it is dangerous to use too strong a solution. When the mordant has bitten into the design as deep as you wish it, remove the project from the acid and wash thoroughly in cold water, drying with a soft cloth. After you have done this, remove all asphaltum varnish with a cloth soaked in turpentine. Clean all raised parts with steel wool but never use any steel wool on the etched part. The etching acid eats tiny holes in the metal which gives a beautiful dull effect to all etched parts, thus making quite a contrast with the polished raised surfaces.

While etching on pewter is not terribly involved, it should be carried out with extreme care. For, after all, we are working with nitric acid which is a dangerous chemical and must be handled carefully.

CHAPTER 10

Embossing and Chasing

THE craftsman who wishes to further embellish his pewter projects can work out designs which may be raised in relief on the surface of the metal. This is done by depressing the metal from the back and is called "embossing" or "repoussé." Inner lines and other detail work in a design of this type can be made on the front of the raised section after it has been raised, or the background around the design can be flattened and further decorated in several various effects. This latter process, which may be used above or in combination with embossing is called "chasing." The same tools are used for both processes and are known in metalcraft as chasing tools. Both of the terms, embossing and chasing, are quite often used co-jointly.

While pewter is not embossed or chased extensively, some craftsmen may desire to use this method of decoration. If that is the case, then for all practical articles the gauges of the metal used should be from 18 to 20. However, if purely ornamental projects are made for embossing or chasing, No. 22 gauge is satisfactory, and is easier to emboss than the thicker guages.

As a rule, chasing tools are obtainable only in complete sets of twelve, twenty-five, or fifty. Actually, only four different tools are absolutely necessary for the beginner. They are as follows: (a) an outline tool, (b) a narrow raising tool, (c) a broader raising tool and (d) the background tool. These four essential tools are illustrated in the drawing, Fig. 29.

The outline tool shown at A, Fig. 29, has the end filed so that it is shaped to a narrow oblong $\frac{5}{32}''$ wide and $\frac{1}{16}''$ in depth. The narrow raising tool, shown at B in the same drawing, has an end that is shaped in a slightly deeper oblong than the outline tool and is $\frac{5}{32}''$ in width and $\frac{1}{8}''$ deep. The broad raising tool, C in the drawing, has an end that is either round or square, $\frac{5}{32}''$ wide and the same in depth. The background tool, D, is approximately the same as the narrow raising tool, that is $\frac{5}{32}''$ by $\frac{1}{8}''$, but it has diagonal parallel lines filed close together across the surface of the

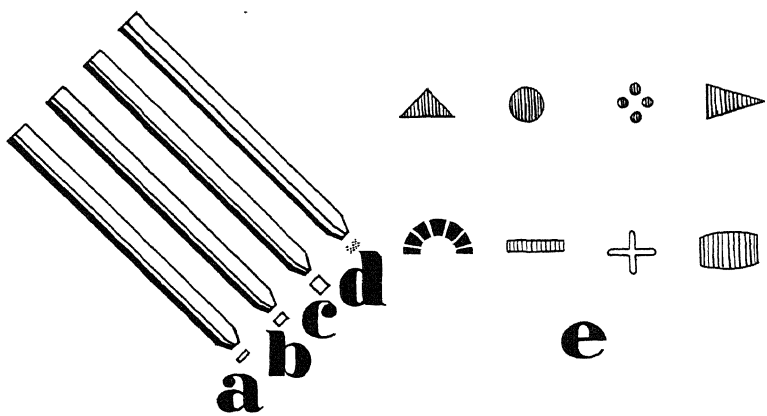


FIG. 29. Chasing tools. (A) An outline tool. (B) A narrow raising tool. (C) A broader raising tool and (D) the background tool. (E) Additional suggestions of designs to be found on background tools

end. This tool is used to stamp out the background of a design. A few additional suggestions of designs to be found on background tools are shown at E.

To do good work, these chasing tools must at all times be kept clean and polished with emery paper.

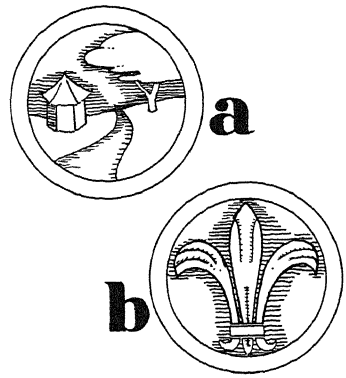


FIG. 30. Two suggested designs for embossing

GENERAL DIRECTIONS FOR EMBOSSING

When considering a design for embossing, one should have in mind a picture of the raised effect which that particular design will produce. Of course, pewter is very malleable and can be embossed, but each craftsman handling either the tools or the pewter will, for some reason or other, produce quite a different effect. It is obvious then that a beginner should select a simple design until he has familiarized himself with the various steps used for embossing. An important point to consider is that the particular effect certain blows of the mallet or hammer will produce on the metal are largely dependent on the craftsman. Two suggested designs for embossing are shown in Fig. 30.

Embossing and chasing can be done only on flat metal, therefore all of these processes which we will describe must be completed before the metal is shaped or cut. While embossing and chasing can be done on other than flat surfaces, it is not practical for the home craftsman. Although it offers unlimited possibilities, it naturally requires the skill of a more experienced metal craftsman.

The first step for embossing and chasing is to draw the design, in pencil or ink, directly on your metal, or trace it in the manner described in a previous chapter. Then the outline should be scratched over lightly with a sharp instrument or metal scriber, so all lines will be distinct. Bear in mind that the design must be scratched or drawn on the reverse side of the metal. When this is completed the metal should be placed on a thick piece of linoleum. This affords a surface that is sufficiently firm yet at the same time yielding, which is the type of surface necessary for embossing and chasing.

All embossing and chasing should be done while seated.

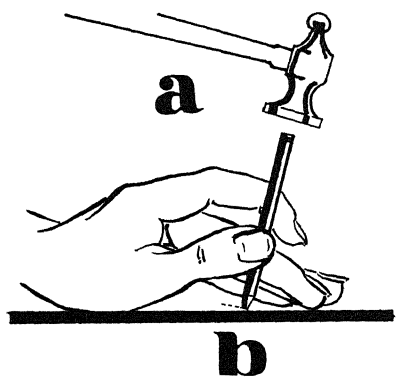


FIG. 31. (A) Position of the hammer and (B) the tool when embossing

The top of the working table must never be higher than the waist of the craftsman. Now, with the metal face side up, the first step is to indent all outlines, using the outline tool. Hold this tool in an upright position with the left thumb and forefinger while the third and fourth fingers rest on the metal, so as to steady it. One of the narrow ends of the outline tool should be directly toward the craftsman and tipped up slightly from the metal in front, in such a manner that the tool is slanted a little backwards. This position of the tool is shown in the illustration, Fig. 31.

Using the broad flat end of your chasing hammer, hold the hammer by the end of the handle with the right hand and, placing the forefinger along the handle for better control, make the strokes with a quick easy motion. Selecting a section of the outline which is coming toward you, place the outline tool at the farther end of this line. Then, keeping the tool moving slowly toward you along this line, strike it with short, rapid, snappy strokes. The strength of the stroke required depends greatly on the gauge of the metal that you are using. And that is the secret of all good embossing, for your strokes should be just heavy enough

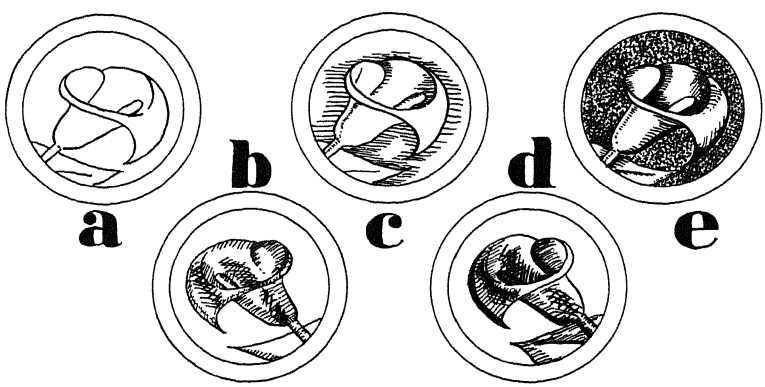


FIG. 32. Five progressive steps employed in embossing

to dent the outline in so that it stands out slightly on the reversed side of the pewter. Never stop moving the outline tool until you have reached the end of the line on which you are working. If you hammer slowly or unevenly, or move the outline tool in a jerky manner, you will be certain to get a broken uneven depression on the other side of the pewter. When doing this type of work be careful to keep the tool and your strokes always in the same position. Keeping that important fact in mind, perform the chasing operation always in a general forward direction. When the line you are outlining happens to change direction, don't turn the tool but turn the metal so that the line is always directly toward you.

After you have dented in the entire outline, turn the metal over and you will see the outline standing out slightly on the back of the metal. This is shown at B, Fig. 32. A shows the design as it is drawn on the metal. You will probably find that the edges of the metal have been turned up a little around the outline which you have just dented in. With the broad end of your chasing hammer flatten the turned-up sections, using quick, but gentle strokes. This flattening will make the entire design stand out somewhat on the right side of the metal. Now examine the right side and select parts which you wish to raise more. This is accomplished by working on the back of the metal with the raising tool. Indicate by some marking or other on the back of the metal, the parts to be raised and then again place the work face down on the linoleum.

Exactly the same method of holding the tool and using it is employed with the raising tool. If you have to raise a large area use the broad raiser. For a smaller area, use the narrow raiser. The raising tool should be held with the left

thumb and forefinger and tipped up slightly in front. Begin with a section that is away from you and always keep the tool moving steadily toward you while striking it with short, rapid strokes. If a still wider raised area is desired, start back again and make another row of raising close to the first, and so on until sufficient area has been raised. Never over-raise a design by raising it too much or by making the raising too deep. Embossing is only effective when parts here and there, where emphasis is especially desired, are raised, in much the same manner as one would put in shading in a drawing. After you have raised from the back the selected parts, your design will stand out on the front, as shown at C in the same drawing. Now place the metal face up, and with your outline tool put in any inner lines or details such as the veins of leaves, or lines marking certain divisions of any part of your design. This is further illustrated at D in the same drawing.

CHASING

If you desire to enhance or improve the effect of the embossing it can be done by flattening the background around the design, or any of the bare spaces within the design. This will tend to make the design stand out more prominently; and another point in favor of using chasing in conjunction with embossing is that it makes the background on the front of the metal a little duller than the design, thus adding contrast and interest, as shown in E in the same drawing. A plain background can be obtained with either the narrow or the broad raising tool, thus flattening the background on the front of the metal, by the same method followed in raising the design area from the back. But in this case begin flattening close to the outline of your design and keep

working from there out to the border of the design.

An effective pebble appearance can easily be achieved by using an eight-penny nail as a stamp. The point of the nail, however, must first be filed blunt and rubbed with emery paper until perfectly smooth. Hold the nail straight upright with the thumb and forefinger of the left hand and with the third and fourth finger resting firmly on the metal, hit the head of the nail lightly with the flat end of your chasing hammer. Of course if you do this you must begin near the design outline, dotting over the entire background area with your stamp. Instead of the simple background treatment just mentioned, which incidentally is the easiest one for the beginner to try, added decorative effect may be obtained by using the background tool, the last of the chasing tools described in the previous paragraph.

These background tools come in a variety of designs. They can be used not only for decorative additions to any design but also as independent decorations to either cover an entire area of flatwork or to form decorative and effective borders. Various designs may be selected and several may be combined to make a really interesting arrangement. But if they are being used for a background around a design, select a very simple unit. The method of using these tools, whether they are simple or decorative, is approximately the same for the background or border decoration. The metal should be placed, face side up, on the piece of thick linoleum. The chasing tool should be held perpendicularly, not tilted as were the other tools used. The chasing tool should be grasped firmly, but not too tightly, with the thumb and forefinger of the left hand, the third and fourth fingers resting on the metal to steady it. The chasing hammer should be held by the end of the handle in the

right hand and with the forefinger placed along the top of the handle so as to have complete control of the hammer. And, of course, the upper arm should be braced against your body. Using a motion that is light and swinging from the wrist, hit the top of the tool lightly with the broad end of the chasing hammer. The design of the tool, remember, should always be pointed in the same direction and the marks made should just touch each other but never overlap. As in all other embossing and shaping operations, keep the position of your tool and the direction of your hammer strokes unaltered, moving the metal (or better still having someone else move it for you) just the right amount required for every additional stroke. Always bear in mind that the less you vary the position of your chasing tool and the direction of your strokes, the more even, accurate, and artistic will be the resultant work.

The actual mechanics involved in embossing and chasing as you can readily understand from the foregoing paragraphs are very few indeed. So much depends on the individual himself, that it is best for each individual craftsman to practice and experiment carefully with these tools. This is the only way to familiarize himself with exactly how much actual embossing and chasing certain strokes will accomplish, for what one craftsman will do another craftsman cannot do. It all depends on the individual, the particular method, and the particular weight of each and every stroke of his chasing hammer as to the quality, depth, and definition that he can give to this rather individual form of pewter decoration.

CHAPTER 11

Soldering Pewter

WE HAVE now come to the last of the important processes in pewtercraft—soldering. In making some of the various projects shown in the latter section of this book, soldering will be required for joining together two or more pieces of the pewter. Contrary to general belief, pewter can be soldered easily and successfully, provided a few elementary precautions are taken. Because pewter has a low melting point, extra precaution must be taken when performing this phase of the work.

Provide yourself with a small piece of asbestos board on which to place the work you are soldering, and a small blowtorch of the type shown in the drawing, Fig. 33. For experimental purposes, and until you have attained some facility in this operation, practice soldering on some spare pieces of pewter.

The first step in soldering pewter is to place the small pieces on the asbestos board, at right angles to each other so that the two edges of the metal meet. Arrange it so that you will have some excess pewter on the outside of the angle which you are about to solder together. This is especially advisable when practicing soldering. Now both sides of the joint you want to make should be painted with a

material known as pewter flux. This flux is obtainable in small quantities at any art or metal supply house. It enables the metal solder to flow into the joint. Now cut a number of small pieces of solder wire, making each of them about ¼″ long. Line all of these up along the joint on the outside of the two pieces of metal that you are joining together, leaving about ⅛″ between each piece of the solder. Using the small alcohol blowtorch, start by playing the flame along

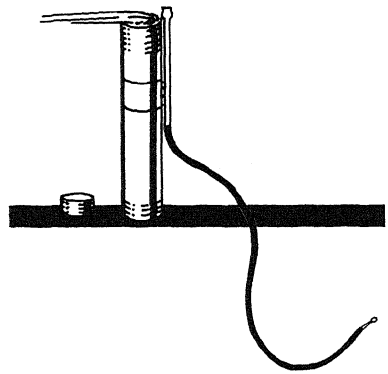


Fig. 33. Small blow torch used for soldering pewter

the creases from the outside of the joint, making certain not to apply too strong a heat. These alcohol blowtorches can be secured at any art or metal supply store, are reasonable in price, and are not dangerous or difficult to handle.

Turn the point of the flame quickly back and forth along the joint, never leaving the heat at any one spot for any length of time. You will note that as the solder melts it becomes very shiny and will start running into the joint. When the joint has entirely filled with the solder, remove the heat. Now after it is cooled off and both of these pieces have been soldered together the excess pewter should be

cut off with a pair of metal shears and the remainder of the excess metal and solder filed until the joint is clean and smooth. The entire surface of the joint should then be burnished, inside and out, with some powdered pumice and with polishing compound.

In summing up these few terse directions in soldering we should bear in mind that the following points and operations are carefully carried out: (1) the flux used must cover and permeate all parts of both the seam and solder used; (2) cleanliness is an absolute necessity, for both seam and solder should have bright clean surfaces; (3) solder flows toward the hottest area, therefore, play your flame on the larger mass, let the heat radiate and be transmitted to the smaller part of the work, insuring a uniform heat which is essential to excellent soldering, plus obviating the danger of melting the pewter itself; (4) always use a small flame; (5) if any light is seen through a joint, the chances are that this joint is faulty and will not be strong enough, therefore, reinforce that particular joint.

While soldering, as can be understood from the foregoing explanations, is quite a simple procedure, it is important that it be done correctly in order that the entire job be satisfactory. Therefore, follow these directions very closely, and you will have no trouble in performing this phase of pewtercraft.

PART II

A Series of Progressive Pewtercraft Projects

PROJECT-1

Attractive Paper Cutters That Are Easy to Make

MAKING the paper cutters shown in the drawing, Fig. 34, will involve several of the basic operations described in the first section of this book; namely, tracing the design onto the material, cutting out the design, and decorating with either pierced work or etching.

The first operation in making these paper cutters is to flatten out and clean the metal. Then transfer any one of the designs shown in Fig. 34 onto a piece of heavy brown paper, and trace the chosen design from the brown paper onto the metal. Next, cut out the outline of the paper cutter. When cutting out the pewter be careful not to cut right onto the line, but rather leave that final phase of the operation to be done with a file.

After the outline has been carefully cut out and filed to the desired line, trace the design of the decoration that is either to be etched or sawed out on the handle of your paper cutter. Proceed with the etching part of the project as per the directions given in the chapter devoted to etched pew-

ter. Two of the designs shown in Fig. 34 are executed by etching, while the other is a combination of etching and pierced work. Either one of the three paper cutters make a very attractive project and can be completed in a few hours. Either of them makes an excellent project for the beginner. After doing all the preliminary work described, the project is finished in the manner described under the heading of cleaning and polishing.

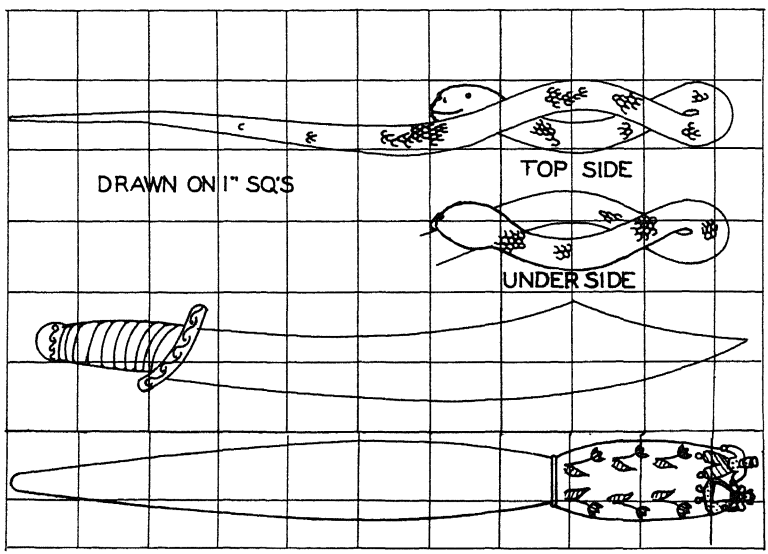


FIG. 34

PROJECT-2

Blotter Corners

THE blotter corners shown in the working drawing, Fig. 35, are just as simple to make as the paper cutters previously described. Approximately the same operations are involved except to make allowances for the tabs which are to be bent in to fit over the blotter pads, which can be secured at any stationery store.

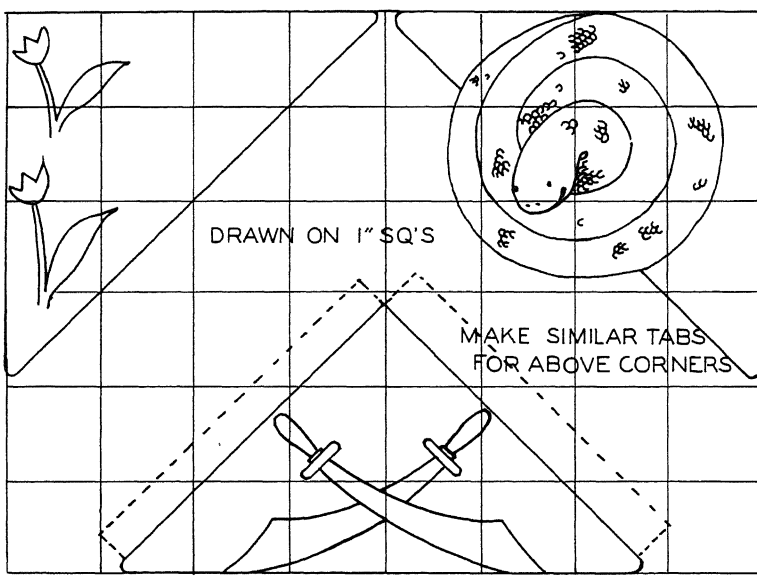
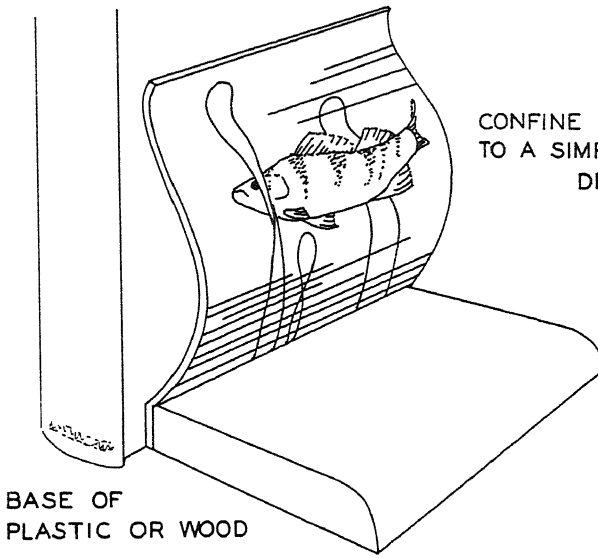


FIG. 35

PROJECT-3

Bookends Made of Pewter

THE working drawing, Fig. 36, illustrates two different types of book ends that can be made with pewter, one of which can be made of pewter combined with a base of plastic or wood. These working drawings are merely suggestions. You may want to make up your own designs, remembering, of course, decorations on book ends are confined to simple flowing designs. In other words keep away from any intricate patterns. Whether the decorated portion of the book ends is etched, pierced, or both, that basic principle should be maintained throughout. If your book end is to be made entirely of pewter, then be very careful when making the necessary bends, adhering to the directions given in the chapter on bending pewter. If you construct your book ends with a base of plastic or wood, the pewter section must be screwed to the other material, for there is no method of gluing or soldering pewter to either plastic or wood.


CONFINE DECORATION
TO A SIMPLE FLOWING
DESIGN
BASE OF
PLASTIC OR WOOD

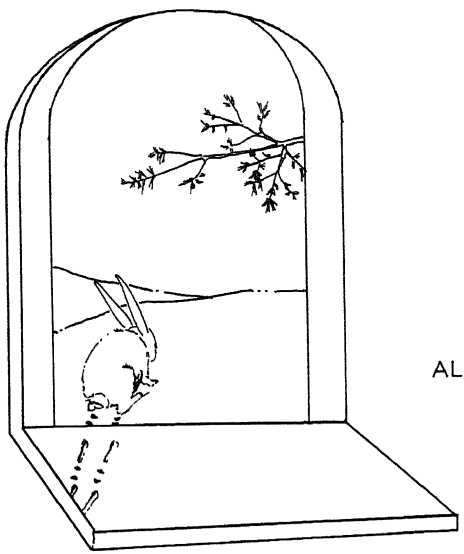

ALL PEWTER ETCHED

FIG. 36

PROJECT-4

A Simple Ash Tray

In our first three projects described in this chapter, we have confined ourselves principally to flat objects. We now proceed to make a simple ash tray involving operations described in the chapter on the forming of bowls. As can be seen from A in the drawing, Fig. 37, this ash tray is nothing more or less than a simple raised bowl. We further embellish it in the manner shown at B in the same drawing, that is with a small rounded piece of hard wood; indentations are made for either cigarettes or cigars. In making these indentations, as can be seen at C in the same drawing, the edge of the bowl is bent in just a little bit more than at A, thus adding to its attractiveness. No further directions are required for making this particular project, for the actual step-by-step procedure is fully covered in the chapter previously referred to.

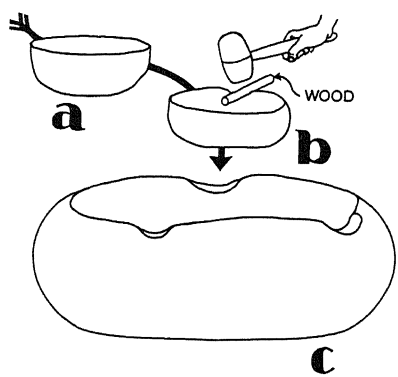


Fig. 37

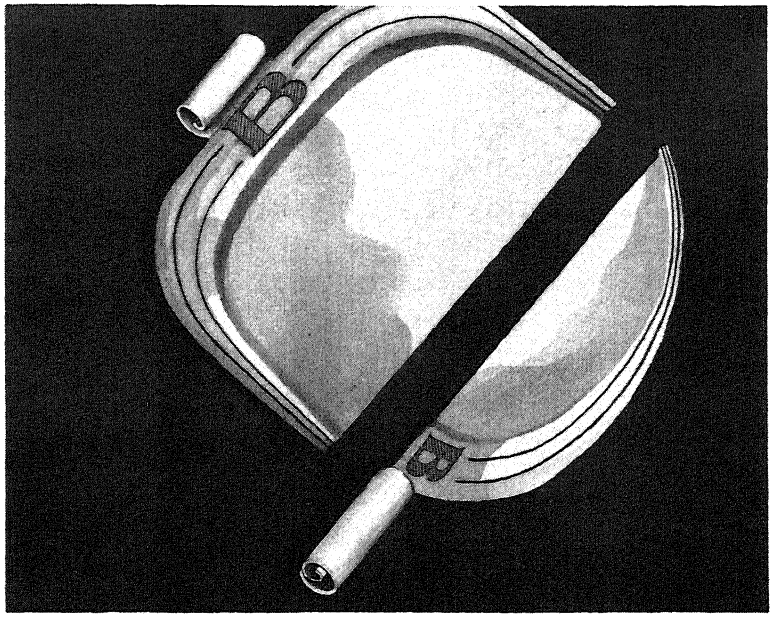


FIG. 38

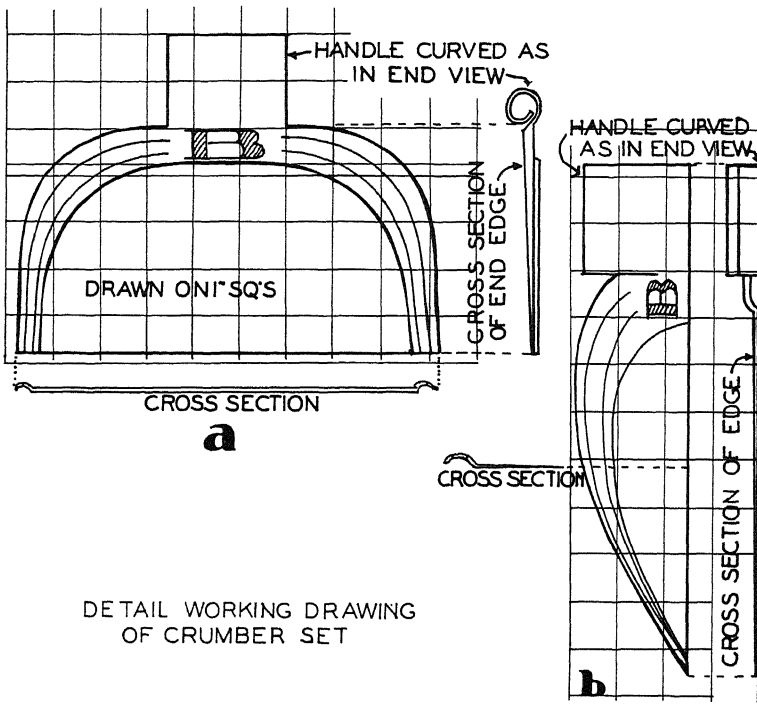
PROJECT-5 *A Crumber Set*

CRUMBER sets of the type shown in the illustration, Fig. 38, and in the drawing, Fig. 39, make very attractive projects for the pewter craftsman. Making this crumber set is a little more involved than any of the preceding projects described. For the crumber set shown in the drawing, Fig. 39, you will require two pieces of pewter, one 7″ x 10″ and another 3″ x 11″. The initial steps in making this set are, of course, to flatten and clean the metal, and then to trace the design of the project on the pewter. This is done in the usual manner.

The outline of the two parts of the set are then cut out of the metal in the manner described in a previous chapter in the book. Before filing close to the desired outline, draw or make the design for the monogram or use any conventional design which appeals to you.

In this type of project it is recommended that the monogram or design be etched; and the next logical step is etching the design, including the outline curves as shown in both of the drawings, Fig. 39.

After etching, file to the desired outline and clean up the job before proceeding with the next step. Now proceed to



DETAIL WORKING DRAWING OF CRUMBER SET

FIG. 39

form the outer rim of both the tray and the knife, hammering them out to the desired shape. Now make the handles of scraper and tray. This phase of the job is done on the mandrel and is explained in detail under the chapter devoted to bending and forming.

While a specific design for the crumber set has been shown in the working drawing, you can, of course, alter this design to suit your own particular requirements. No special difficulty will be encountered in making this set, but take extreme care to follow all steps necessary for the completion of the project by referring from time to time to the specific directions given for each operation in the first section of the book.

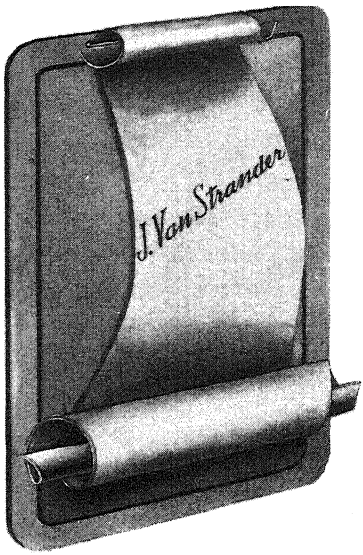


FIG. 40

PROJECT-6

A Pewter Knocker

HERE we have a project in pewtercraft that should appeal to every home owner. If you do not happen to be a home owner, the author is certain that you will want to make one of these pewter knockers as a gift for a friend. They are quite simple to make and needless to say will be welcome as a gift by almost anyone.

You will require several pieces of pewter to make this project: one piece 5″ x 6″, another piece 5″ x 8″, and a strip ¼″ x ¼″ x 3½″. After having procured the necessary material, cut out the required outlines as shown in the

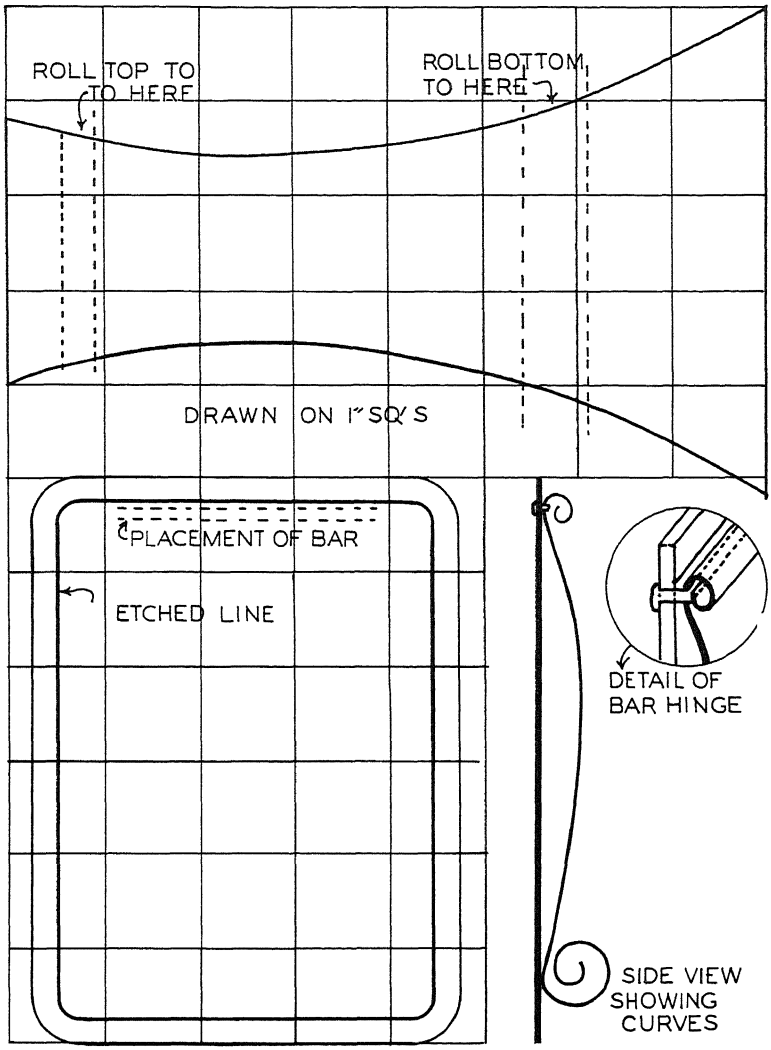
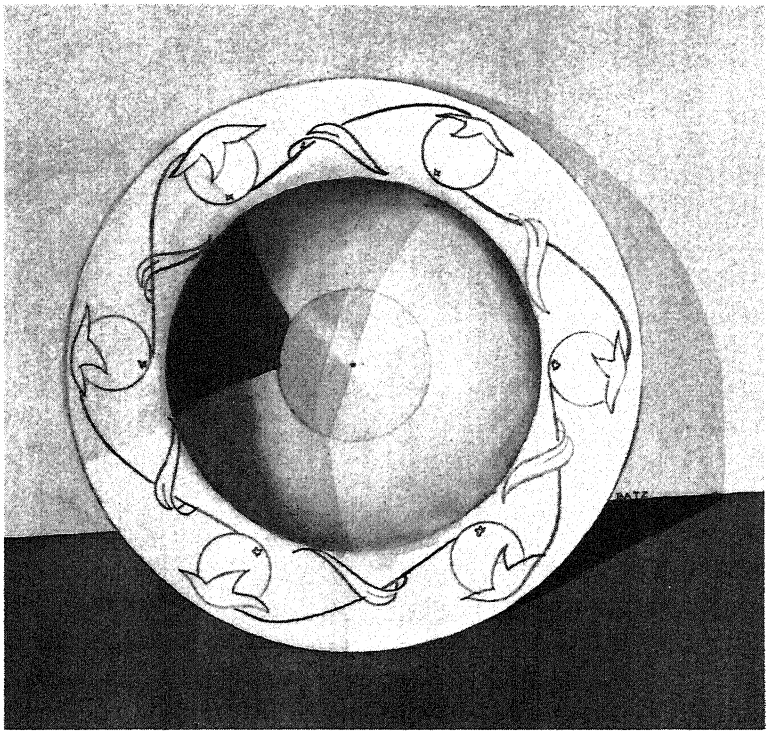

ROLL TOP TO
TO HERE
ROLL BOTTOM
TO HERE
DRAWN ON 1" SQ'S
PLACEMENT OF BAR
ETCHED LINE
DETAIL OF
BAR HINGE
SIDE VIEW
SHOWING
CURVES

FIG. 41

drawing, Fig. 41. The back of the knocker should be rather plain with just an etched line around it as shown in the drawing. Before proceeding with the actual construction work, be certain to do all necessary etching, including the design on the knocker itself. Incidentally, the knocker should be used only as a name plate and bear no other decorations. While conventional lettering is attractive and proper, it is suggested that the craftsman secure a facsimile signature of the person whose name is to appear on the knocker, transfer it to the material and etch in as per directions given under the chapter devoted to etching.

Next step in the construction of our project is to form the curve for the knocker. This is quite easy, but care should be taken that the end curves are symmetrical and properly done. It is suggested that the craftsman start with the inner curve and gradually work out to the outer curve. The inner curves are formed on the mandrel, and the outer curve on any other curved material the craftsman may have available. Construction of this knocker involves no great difficulties, merely a little patience and some forethought in planning the work ahead of time.

Our next step, after shaping the knocker portion of the project, is to secure it to the required position for the strip to be inserted under the curved portion of the knocker, and secure to the flat portion by putting the ends of the ¼″ pieces through the drilled holes and soldering in place as per directions given in the chapter on soldering. When the entire job is complete, clean up with some wire wool and polish.



PROJECT-7

A Bowl With Ornamental Brim

If you have closely followed all directions in previous chapters of this book, you will have no difficulty in making this attractive bowl. Follow the suggestions previously

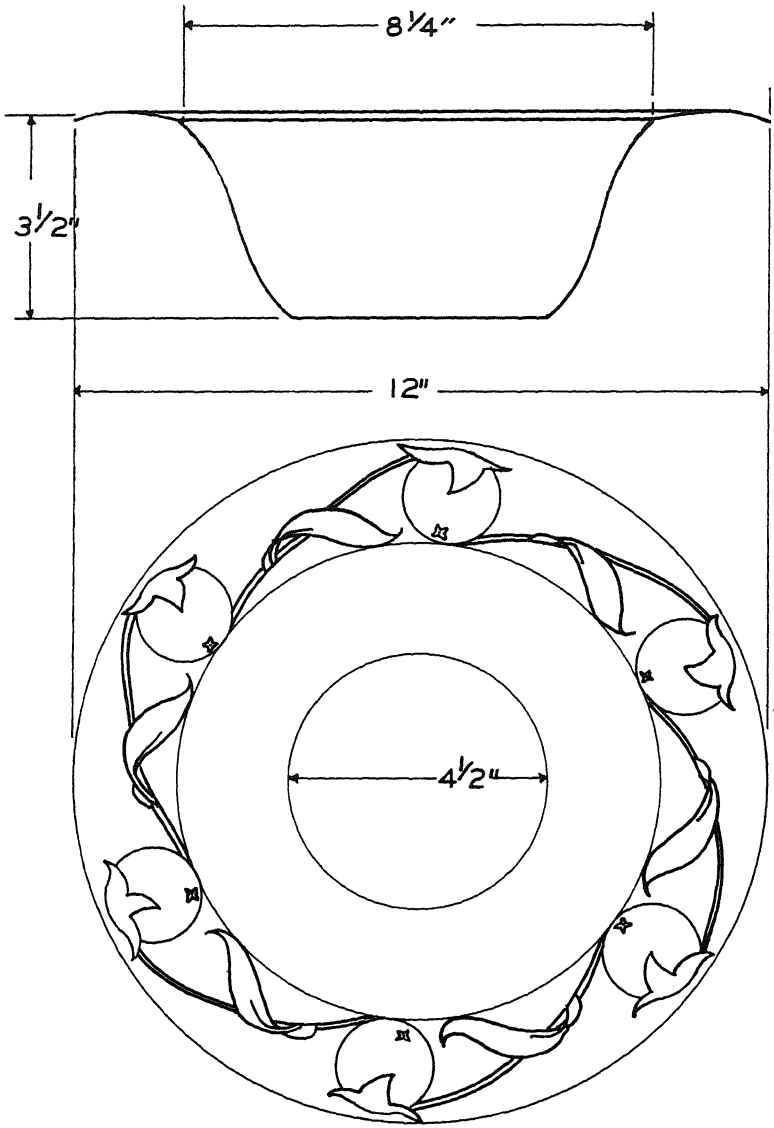


FIG. 42

given for estimating the correct size of the material required.

First, make a template of the exact shape and size desired, that is, after flattening and cleaning the metal. Mark off your brim on the template. Cut your metal out according to the template you have made, following the directions which were given for cutting, sawing, filing. Draw the inner outline of your brim on the upper surface of the pewter.

When making a bowl with a brim use the same molds which are employed for ordinary bowls. The pewter should be held first on a shallow mold, with the inner line of the brim just in from the front edge on the mold, and the shaping begun with forward blows of the mallet exactly in the same manner as that described for brimless bowls. After you have completed the first circle of blows the bowl will begin to take shape, but at the same time the brim will ruffle or kink. The work should then be placed face down on a flat surface and all ruffles in the brim pounded with the flat end of your mallet. After this is done, the bowl should be placed on one of the rounded stakes shown in a previous illustration, and all kinks in the bowl shape removed. Proceed in the same manner until the bowl has the desired shape. After the bowl has been formed to the shape desired, trace the design required on the brim and etch it. After your bowl is formed, make certain that the base has been measured off and flattened, and the outline of the brim evened off by filing, before cleaning and polishing.

PROJECT-8

A Cigarette Box

THE box shown in Fig. 43 does not present any operations not previously described. It is essentially a forming and bending project. You will require two pieces of 16- or 14-gauge pewter. One piece 7″ square for the box itself, and another piece approximately 4″ x 7″ for the cover. After flattening and cleaning the metal, cut as per general directions given, clean, and file to the required line.

The first part of the project to bend will be the curved sides of the box itself. While they can be bent on a mandrel to the required shape before they are soldered, the writer has found it easier to cut a cigarette box of this type into three pieces, that is, the box itself and the two sides separately, rather than to attempt bending the box to fit the sides. Therefore, it is recommended that the craftsman cut out the metal into three separate pieces and form the larger piece (which is approximately 6¼″ by nearly 4″) on the mandrel to the required curve, then solder the cutout sides to this shaped piece.

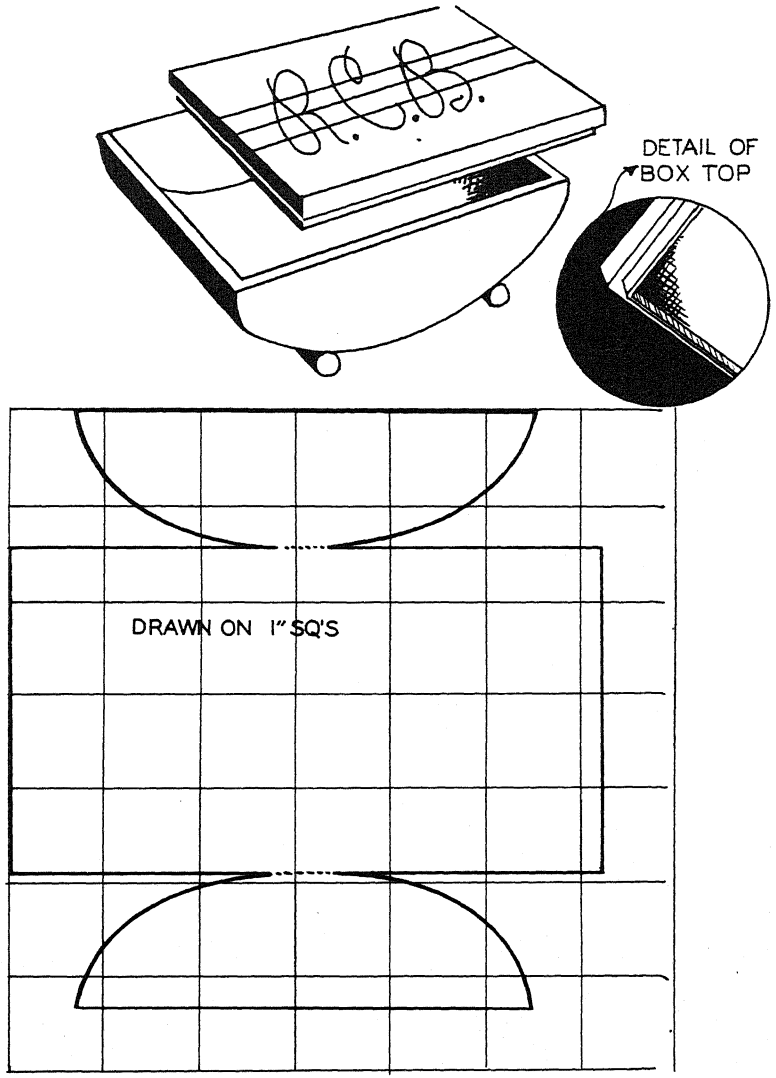


FIG. 43

After we have formed the actual box, the next step is to make the lid or cover. Detailed step-by-step explanations of the various operations involved in the making of this cover are unnecessary, for the working drawing clearly shows the construction. However, it should be noted that this cover is formed from a piece of 10-gauge pewter, 4″ x 7″, and should be made just a trifle larger than the top of box, and all the design should be etched before the cover is formed.

Also remember that, after the cover has been formed, your small blocks of 10-gauge pewter should be soldered onto the corners in the under part of the cover, so that it will sit securely on the box. Test the position of these blocks before soldering so as to make certain that your cover will fit snugly. While the drawing shown gives some dimensions, these dimensions are by no means arbitrary. The craftsman can make this cigarette box as small or as large as desired. After fitting the cover, all that has to be done is the final cleaning up and polishing.

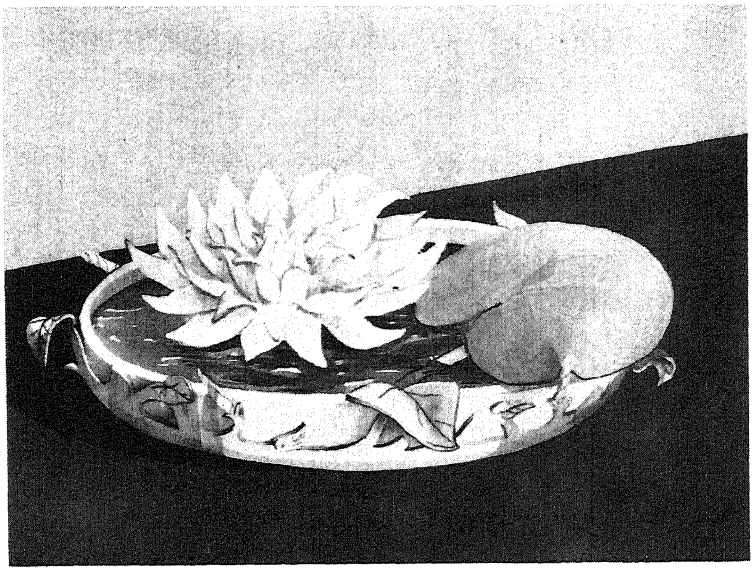


FIG. 44

PROJECT-9

A Pewter and Glass Lily Bowl

AN unusual type of flower bowl can easily be made by combining a pottery or glass bowl with an ornamental pewter rim. While the diagram (Fig. 45) shows a rim of a specific size, the craftsman can alter the specific design shown to fit any bowl. The required size of the metal to be used should be secured, and it is suggested that the craftsman use either 18- or 20-gauge pewter for this project, since it will be easy to bend.

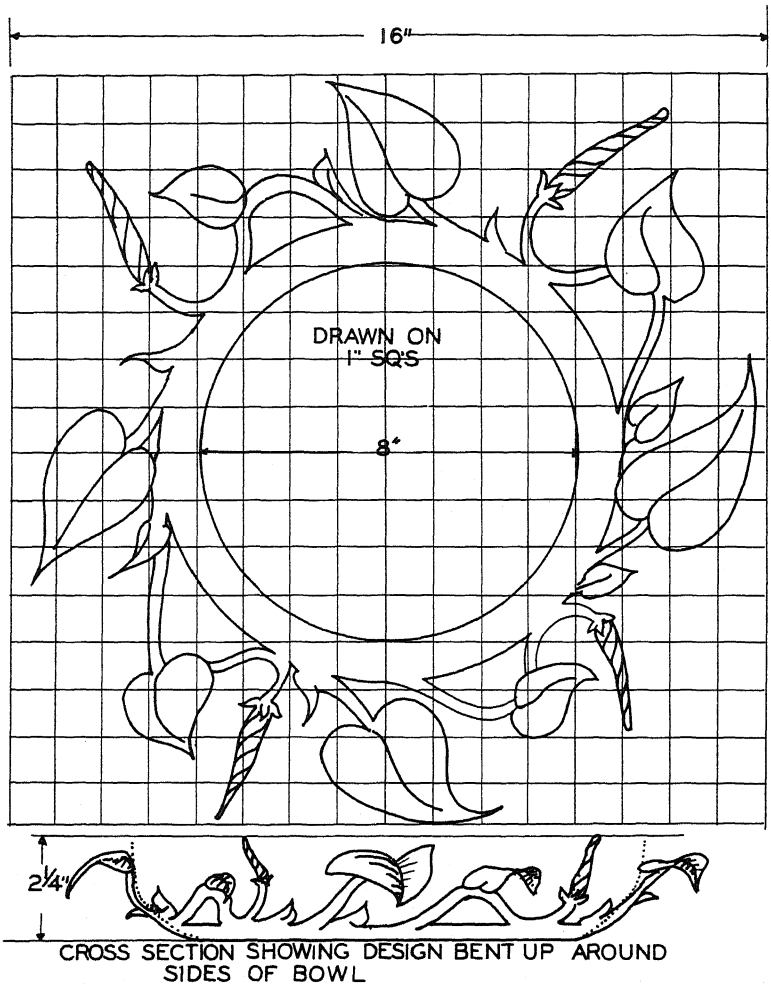

16"
DRAWN ON
1" SQ'S
8"
2¼"
CROSS SECTION SHOWING DESIGN BENT UP AROUND
SIDES OF BOWL

FIG. 45

The first step in making this bowl is to prepare a template of the design shown in the drawing and transfer the template to the metal, which, of course, has been previously flattened and cleaned. As this is a combination of etching and fret-saw work, it is advisable to do all etching on the flat metal before cutting out and shaping. After the metal has been etched to the required depth, cut out the brim.

It is suggested that the craftsman first cut out the entire outline, then cut out the opening for the bowl and proceed with the next step, cutting out finer points of the design with a fret saw, and finishing to the required lines with a file. After this has all been done, the job should be cleaned and polished before any bending is attempted. After the metal has been cleaned and polished, place the ornamental brim you have just made onto the bowl for which it has been intended and then bend up the various component parts of the designs in the desired shape. As the metal you have used is of a thin gauge, this can easily be done with a small pair of pliers, or even with the fingers.

While this particular rim can be used on a glass bowl, it is suggested that the craftsman secure a pottery bowl of a suitable shape and color. The green or russet pottery procurable at any of the chain stores will help considerably in making this project an attractive and decorative one for use around the home. It can be used for dahlias or lilies and any type of short-stemmed flower.

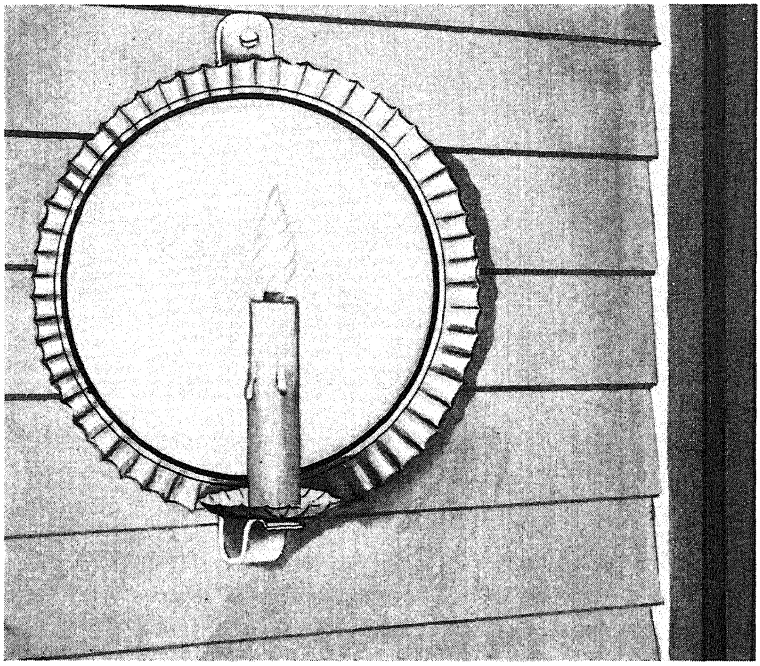


FIG. 46

PROJECT-10

Outdoor Lighting Fixtures

HERE we have two projects that will test both your knowledge of pewtercraft and your skill in handling the metal. While both of these projects are simple and within the scope of the average craftsman, they are a little more ambitious than any of the previous ones described, and will require some planning and some acquired skill.

The sconce shown in the upper part of the drawing is conventional in design, and does not involve any intricate procedures. The main parts of the sconce consist of two shallow disks of pewter, each of which has been fluted. By following the directions given for cutting and shaping, the craftsman will encounter no difficulty. The socket assembly or the electric fixture can be secured in the five- and ten-cent store. The reflector section of the sconce should be highly polished, and should be secured with solder to the 1½″ x 14″ strip that is used for the back bracket. The back bracket should be formed to the required shape on the mandrel and the 3″ disk secured to that in order to hold the candle part of the fixture. Any additional directions are unnecessary, for the craftsman will encounter no difficulties if he will closely follow the working drawings shown.

The last project shown, a lantern made of hammered pewter, is quite an attractive project as can be seen from the drawing. The lantern does not present any special difficulties as the sides are just bent squares, which can be made from one piece bent to the required angles, or from four pieces and soldered together. The top of the lantern can be made in the same manner, and the rounded handle can be made of a piece of metal shaped to the required size and soldered to the top of the lantern. The gratings over the glass are made from ¼″ strips cut to the required size, shaped, and soldered to the sides of the lantern. While dimensions are given in the drawing, the craftsman can follow any dimensions suited to his particular purpose. However, the general method of construction should be the same as that shown in the drawing, to obviate any further explanation. For specific directions on each operation involved refer back to chapters in the first part of the book.

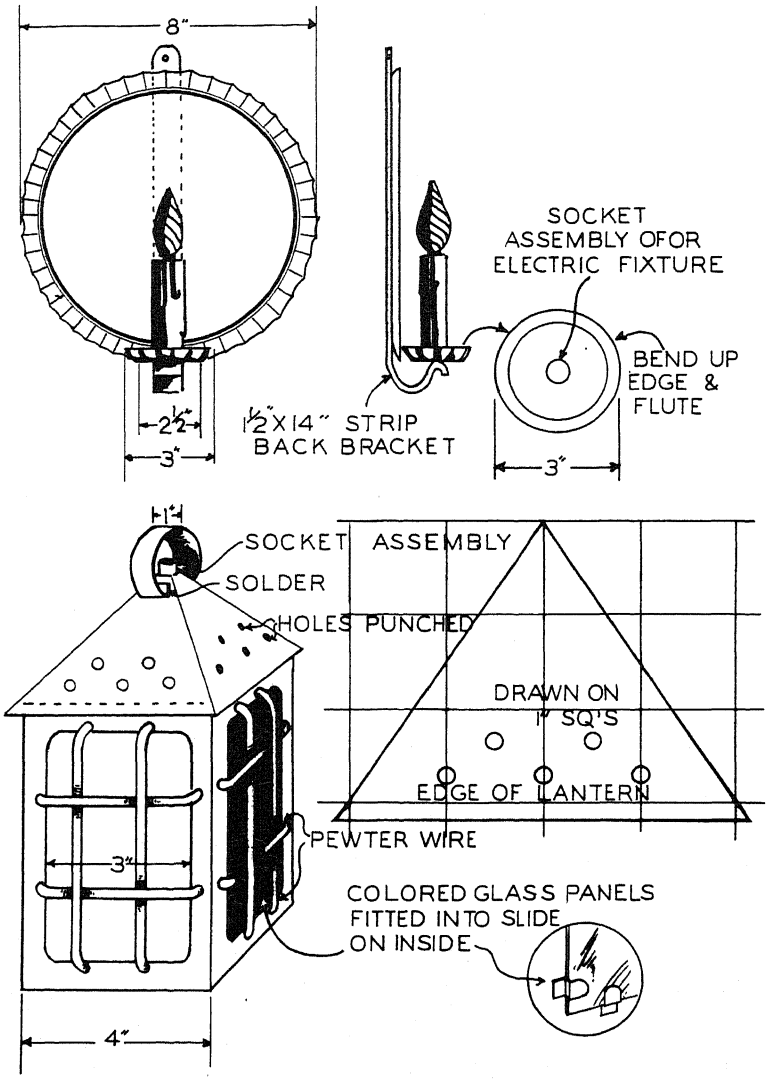

8"
2½"
3"
SOCKET
ASSEMBLY OFOR
ELECTRIC FIXTURE
BEND UP
EDGE &
FLUTE
½"X14" STRIP
BACK BRACKET
3"
1"
SOCKET ASSEMBLY
SOLDER
HOLES PUNCHED
DRAWN ON
1" SQ'S
EDGE OF LANTERN
PEWTER WIRE
3"
COLORED GLASS PANELS
FITTED INTO SLIDE
ON INSIDE
4"

FIG. 47

If you have successfully completed all of the progressive projects described in this book you will have attained a certain amount of facility in handling the metal and your tools. Combining this facility with the knowledge acquired of the various methods involved in Pewtercraft, you are ready to proceed with any projects of your own design. How ambitious these projects may be depends entirely upon your individual ability.

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METAL WORK, C. Leland. Pitman

METAL WORK, H. Maryon. Scribner

METAL WORK, BEATEN, A. C. Horth. Pitman

OLD PEWTER, N. Hudson Moore. Garden City

PEWTER DESIGN AND CONSTRUCTION, W. H. Varnum. Bruce

PEWTER WORK, F. R. Smith. Pitman

SILVERWORK AND JEWELRY, H. Wilson. Pitman

PERIODICALS

Hobbies
Home Craftsman
Illustrated Mechanics
Industrial Arts
Popular Homecrafts
Popular Mechanics
Popular Science Monthly
School Arts Magazine

Appendix..

For the convenience of the craftsman, who may have difficulty in securing the necessary tools or materials, the following list has been compiled:

American School of Handicrafts, 193 William St., New York, N. Y.

Burgess Handicraft & Hobby Service, 117 North Wabash Ave., Chicago, Ill.

Dixon School of Metalcrafts, 36 West 47th St., New York, N. Y.

William Dixon, Inc., 32 East Kinney St., Newark, N. J.

Favor-Ruhl, 425 South Wabash Ave., Chicago, Ill.

Foley-Tripp, 193 William St., New York, N. Y.

Mr. Edwin Morrison Gerould, Sunbeam Farm, Beach Bluff, Mass.

Metal Crafts Supply Co., 37 Aborn St., Providence, R. I.

National Lead Co., 111 Broadway, New York, N. Y.

Universal Handicrafts Service, 1270 6th Ave., New York, N. Y.

Universal School of Handicrafts, RKO Building, Radio City, New York, N. Y.

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